

DEPARTMENT OF THE ARMY
Wilmington District, Corps of Engineers
Post Office Box 1890
Wilmington, North Carolina 28402-1890

ACTION ID No. 199303531

September 5, 2003

PUBLIC NOTICE

PERMIT MODIFICATION

THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT), DIVISION OF HIGHWAYS, Post Office Box 25201, Raleigh, North Carolina 27611-5201, was issued, on May 12, 2003, a Department of the Army (DA) permit pursuant to Section 404 of the Clean Water Act TO DISCHARGE DREDGED OR FILL MATERIAL INTO 13.55 ACRES OF SECTION 404 WETLANDS AND DRAIN 2.14 ACRES OF SECTION 404 WETLANDS. IN ADDITION, NCDOT PROPOSES TO FILL 0.15 ACRES (619 LINEAR FEET) OF OPEN WATERS OF THE UNITED STATES WITHIN THE NEUSE RIVER DRAINAGE BASIN. NCDOT PROPOSES TO WIDEN APPROXIMATELY 14.2 MILES OF NC 55 FROM 0.7 MILES EAST OF US 17 IN BRIDGETON TO NC 304 IN BAYBORO, CRAVEN AND PAMLICO COUNTIES, NORTH CAROLINA (TIP R-2539, FEDERAL AID PROJECT STP-55(1), STATE PROJECT NO. 8.1170901). THE PROPOSED PROJECT CROSSES UPPER BROAD, DEEP RUN AND GOOSE CREEKS, UNNAMED TRIBUTARIES AND ADJACENT WETLANDS. The May 12, 2003, DA permit approved final design drawings for Section A of the project and gave tentative approval for Sections B and C pending submittal of the final design drawings and associated jurisdictional impacts. NCDOT is submitting final design drawings for Section B, applying for a modification to the permit to:

1. Submit the attached final permit drawings and relevant information for R-2539
- Section B. The final design revisions resulted in two sites differing from those submitted with the original permit application.

Site 1, Permit Sheet 7 of 40. Because of low grade and minimal drainage potential of the natural ground elevation at this site, NCDOT proposes to install a V-ditch with 6:1 side slopes to drain the subgrade of the new road. The new ditch will drain 0.06 acres of non-riverine wetlands.

Site 4, Permit Sheet 10 of 40. At this site an area of mechanized clearing in wetlands has been changed to excavation to accommodate a drainage swale.

2. Mitigate for the additional non-riverine wetland impacts by restoring 28.70 acres of wetlands instead of the permitted 28.60 acres. Table 1. displays the information for the additional wetland impacts.

The State of North Carolina will review this public notice to determine the need for the applicant to obtain any required State authorization. No DA permit modification will be issued until a State coordinated viewpoint is received and reviewed by this agency, nor will a DA permit modification be issued until the North Carolina Division of Water Quality (DWQ) has determined the applicability of a Water Quality Certification as required by PL 92-500.

This modification request is being considered pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344). Any person may request, in writing within the comment period specified in the notice, that a public hearing be held to consider this application. Requests for public hearing shall state, with particularity, the reasons for holding a public hearing.

The District Engineer has consulted the latest published version of the National Register of Historic Places for the presence or absence of registered properties, or properties listed as being eligible for inclusion therein, and this site is not registered property or property listed as being eligible for inclusion in the Register. Consultation of the National Register constitutes the extent of cultural resource investigations by the District Engineer, and he is otherwise unaware of the presence of such resources. Presently, unknown archeological, scientific, prehistoric, or historical data may be lost or destroyed by work under the requested permit.

The District Engineer, based on available information, is not aware that the proposed activity will affect species, or their critical habitat, designated as endangered or threatened pursuant to the Endangered Species Act of 1973.

Based upon available information, the District Engineer has determined that the proposed action would not adversely impact Essential Fish Habitat or associated fisheries managed by the South Atlantic or Mid-Atlantic Fishery Management Councils or the National Marine Fisheries Service (50 CFR Part 600).

The decision whether to issue a permit modification will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. Evaluation of the probable impacts which the proposed activity may have on the public interest requires a careful weighing of all those factors which become relevant in each particular case. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. The decision whether to authorize a proposal, and if so the conditions under which it will be allowed to occur, are therefore determined by the outcome of the general balancing process. That decision should reflect the national concern for both protection and utilization of important resources. All factors which may be relevant to the proposal must be considered including the cumulative effects thereof. Among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards and flood plain values (in accordance with Executive Order 11988), land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving the placement of dredged or fill materials in waters of the United States, a modification request will be denied if the discharge that would be

authorized by such request would not comply with the Environmental Protection Agency's 404(b)(1) guidelines. Subject to the preceding sentence and any other applicable guidelines or criteria, a permit modification will be granted unless the District Engineer determines that it would be contrary to the public interest.

The Corps of Engineers is soliciting comments from the public; Federal, State and local agencies and officials; Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Generally, the decision whether to issue this DA permit modification will not be made until the North Carolina Division of Water Quality (NCDWQ) issues, denies, or waives State certification required by Section 401 of the Clean Water Act. The NCDWQ considers whether or not the proposed activity will comply with Sections 301, 302, 306, and 307 of the Clean Water Act. The application and this public notice for the DA permit modification request serves as application to the NCDWQ for certification.

Additional information regarding the Clean Water Act certification may be reviewed at the offices of the Environmental Operations Section, NCDWQ, Salisbury Street, Archdale Building, Raleigh, North Carolina. Copies of such materials will be furnished to any person requesting copies upon payment of reproduction costs.

Written comments pertinent to the proposed work, as outlined above, will be received in this office, Attention: Mr. Michael F. Bell, Washington Regulatory Field Office, Post Office Box 1000, Washington, North Carolina 27889-1000, until 4:15 p.m., September 19, 2003.

Table 1. Jurisdictional Wetland and Surface Water Impacts on R-2539B

Site	Station From/To	Fill in Wetland (ac)	Excavation in Wetlands (ac)	Mechanized Clearing (ac) (Method III) ²	Drainage impacts (ac)
1	56 +30/56 +55		0.08	0.02	0.06 (+0.06)
2	59 +70/61 +00	0.13	0.03	0.05	
3	62 +25/63 +60	0.14		0.02	
4 ¹	74 +85/82 +00	0.34	0.01 (+0.01)	0.14 (-0.01)	
5	81 +85/82 +00	0.03		0.01	
6	102 +35/103 +65	0.12		0.09	
7	108 +50/114 +00	0.71		0.44	
8	117 +20/118 +60	0.02		0.09	
9	119 +20/120 +20	0.05		0.06	
10	121 +70/122 +20	0.11		0.03	
11	123 +75/125 +60	0.05		0.04	
12	130 +60/131 +95	Impacts avoided		Impacts avoided	
13	134 +75/137 +30	0.07	0.12	0.33	
14	139 +10/139 +20	0.04	<0.01	0.01	
15	145 +35/146 +75			0.09	
16 ¹	148 +10/151 +40	0.07		0.08	
TOTAL R-2539B		1.87 (-0.01)³	0.25 (+0.01)	1.51 (-0.01)	0.06 (+0.06)

¹ Sites 4 and 16 contain riverine wetlands associated with Deep Run and Goose Creek.

² Clearing and grubbing of vegetation to 10 feet beyond the construction limits.

³ Impact increase or decrease from original IP application is denoted in parentheses.

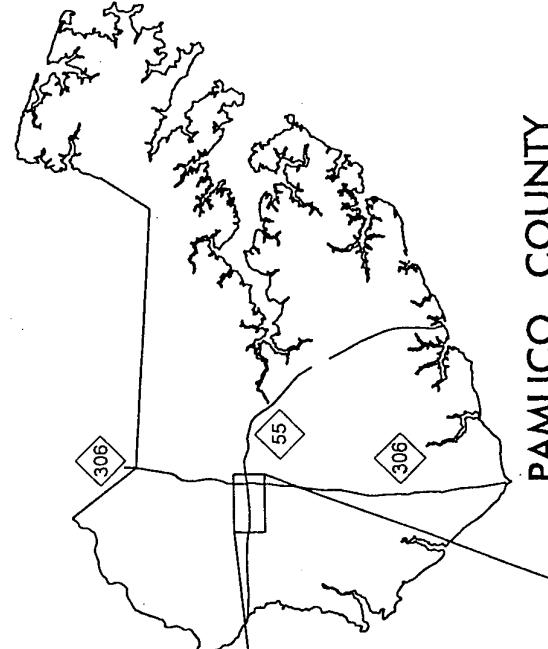
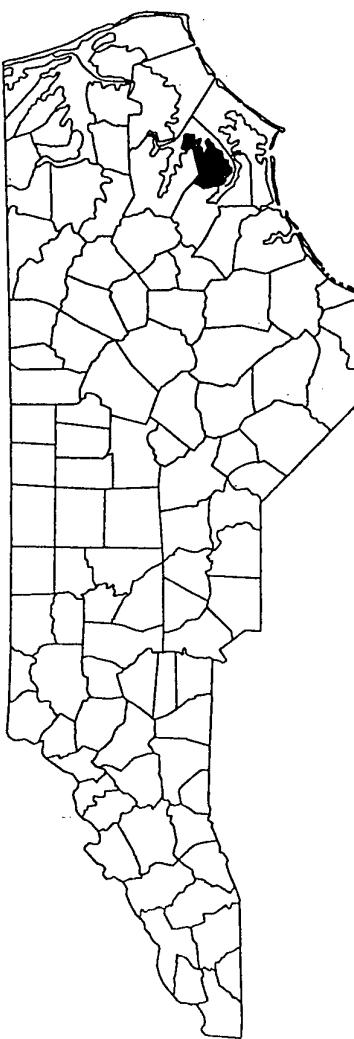
Table 2. Jurisdictional Stream Information, Sections R-2539B

Site	Station Number (From/To)	Structure	Stream Name	DWQ Index No.	DWQ Rating	Status	Impact (ft)	Onsite Stream Relocation (ft)	Required Mitigation 2:1 (ft)
2	59+70/61+00	1650 RCP	Sassers Branch	27-106-5	SC Sw NSW	P	72.2	0	144.4
4	74+85/77+40	Bridge 328 feet	Deep Run Creek	27-106-6	SC Sw NSW	P	0	0	0
5	81+85/82+00	1050 RCP	UT to Deep Run	27-106-6	SC Sw NSW	I	52.5	0	105
7	108+50/114+00	1.8x1.2 RCBC	UT to Black Creek	27-107-7	SC Sw NSW	I	52.5	0	72.2 ²
13	134+75/137+30	900 RCP	UT to West Fork Goose Creek	27-107-2	C Sw NSW	P	118.1	134.5	0
16	148+10/151+40	Bridge 732 feet	Goose Creek	27-107-(1)	SC Sw NSW	P	0	0	0
TOTAL R-2539B							295.2 (-0.1)	134.5	321.6

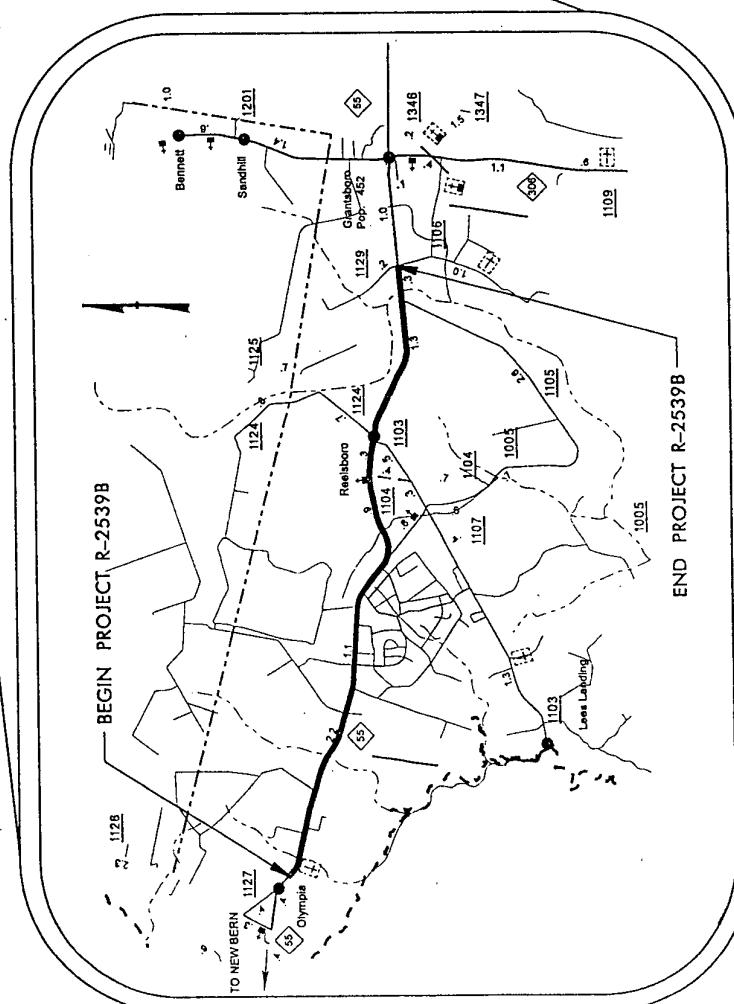
¹ Impact increase or decrease from original IP application is denoted in parentheses.

² NCDOT proposes that the relocated stream channel at Site 13 will provide onsite mitigation for Site 13 impacts as well as 16 feet of Site 7 impacts, requiring the balance of 36 feet of impact from Site 7 to be mitigated for offsite at a ratio of 2:1.

Wetlands



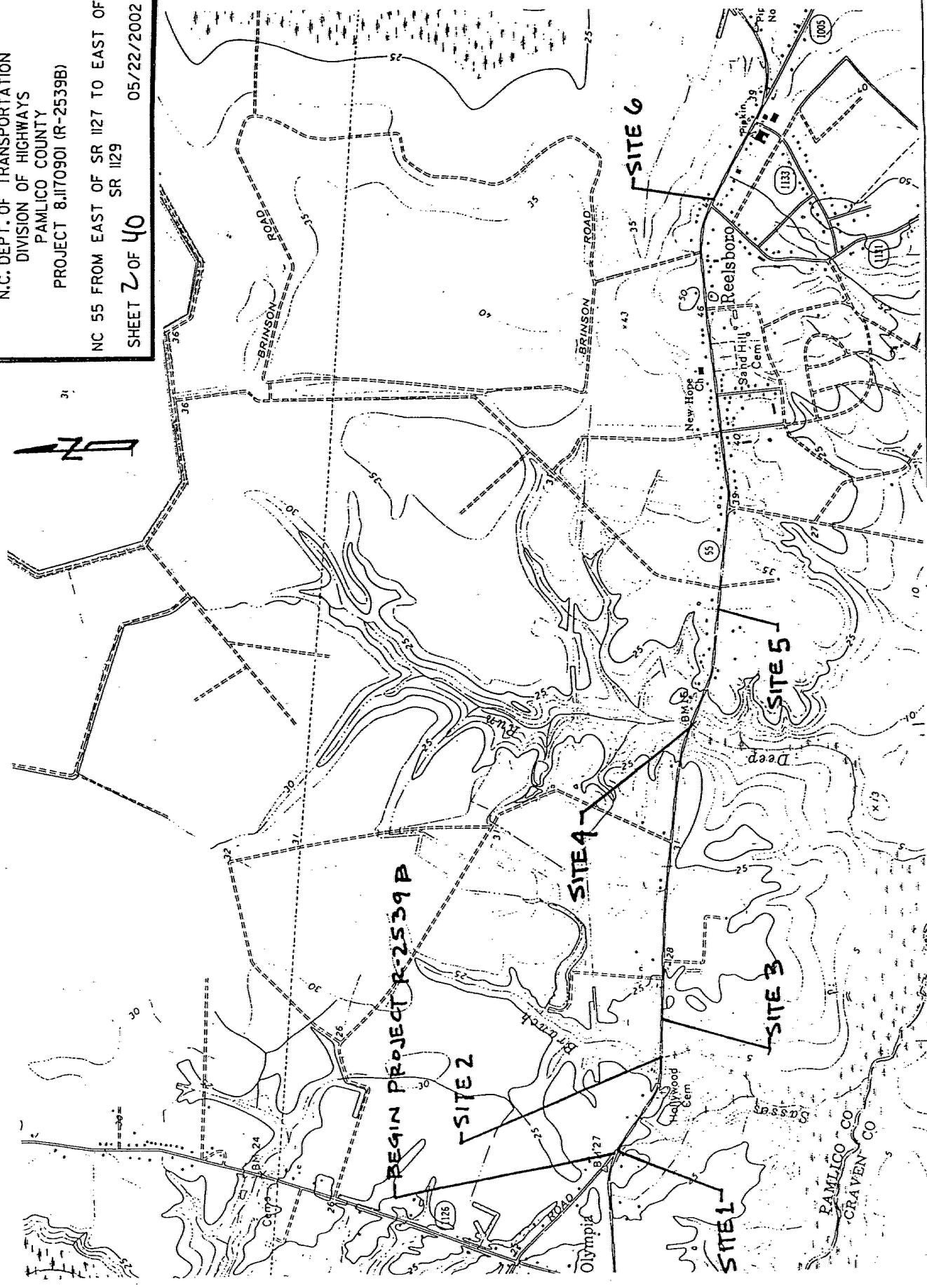
PAMLICO COUNTY



N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMLICO COUNTY
PROJECT 8.II70901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129
SHEET 1 OF 40
05/22/2002

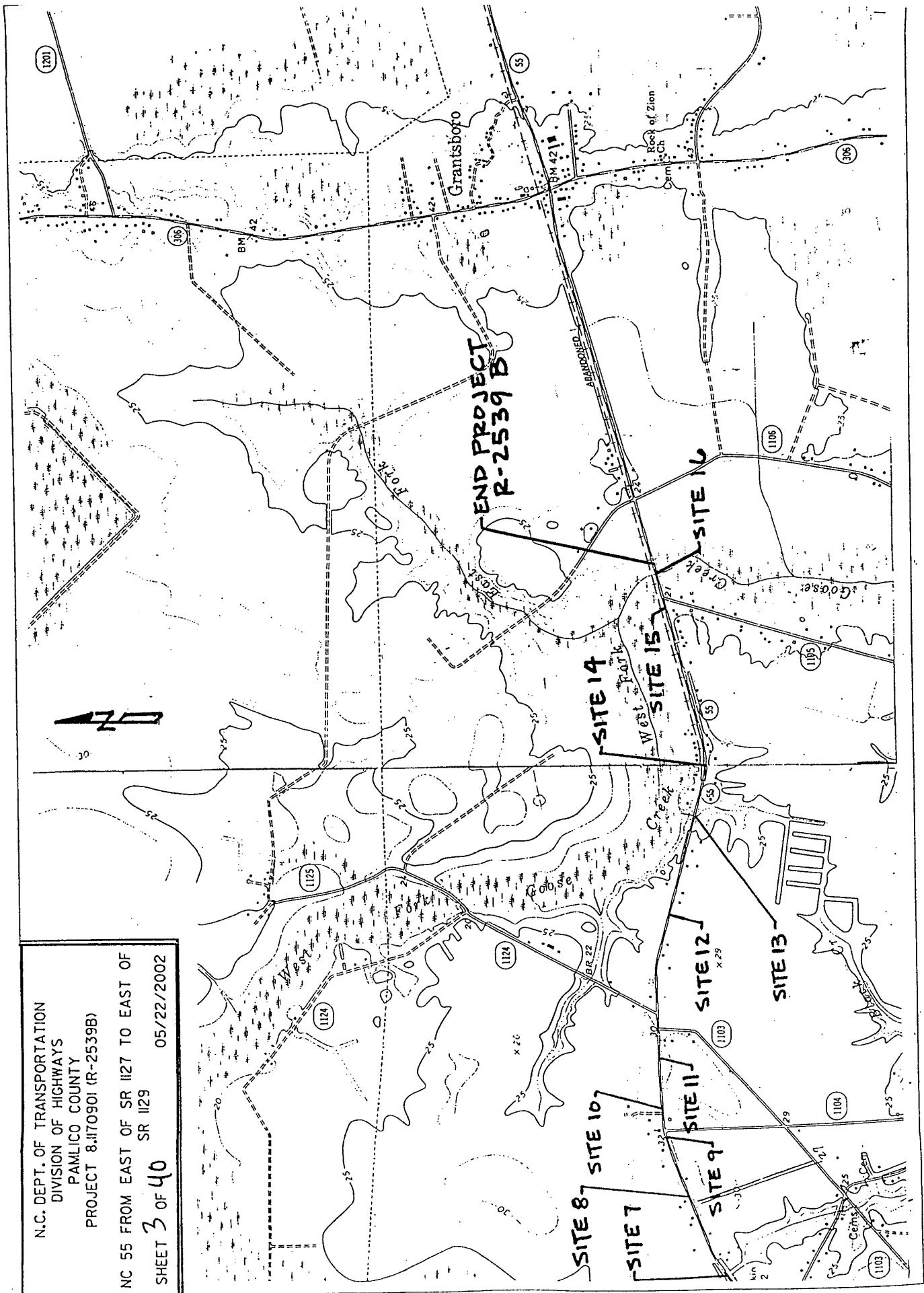
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMLICO COUNTY
PROJECT 8.II70901 (R-2539B)

NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129
SHEET 2 OF 40
05/22/2002



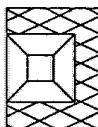
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 8.1170901 (R-2539B)

NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129 05/22/2002
SHEET 3 OF 40



NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129
PROJECT: 8J170901 (R-2539B)
PAMlico COUNTY
DIVISION OF HIGHWAYS
N.C. DEPT. OF TRANSPORTATION

PERFORATED SCOUR HOLE

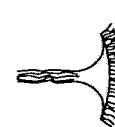


ADJACENT PROPERTY OWNER
OR PARCEL NUMBER
IF AVAILABLE

RIP RAP



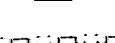
ROOTWAD



DRAINAGE INLET



WOODS LINE



SINGLE TREE



(DASHED LINES DENOTE
EXISTING STRUCTURES)

PROPOSED PIPE CULVERT



PROPOSED BOX CULVERT



PROPOSED BRIDGE



LEGEND

MLB — WETLAND BOUNDARY	
DENOTES FILL IN WETLAND	
DENOTES FILL IN SURFACE WATER (POND)	
DENOTES FILL IN SURFACE WATER	
DENOTES FILL IN TEMPORARY	
DENOTES EXCAVATION	
FILL IN WETLAND	
DENOTES EXCAVATION	
WATER	
DENOTES MECHANIZED CLEARING	
RESTORATION	
TOP OF BANK	
WE — EDGE OF WATER	
C — PROP. LIMIT OF CUT	
E — PROP. LIMIT OF FILL	
NG — NATURAL GROUND	
PL — PROPERTY LINE	
TOE — TEMP. DRAINAGE	
PDE — PERMANENT DRAINAGE	
EASEMENT	
—EAB— EXIST. ENDANGERED ANIMAL BOUNDARY	
—EPB — EXIST. ENDANGERED PLANT BOUNDARY	
—D — WATER SURFACE	
X X X LIVE STAKES	
Boulders	
CORF FIBER ROLLS	

PROPERTY OWNERS

PARCEL NO.	NAMES	ADDRESSES
1	JUDY C SPEIGHT	1233 BROAD CREEK RD NEW BERN, NC 28560
2	JULIAN B BROUGHTON, JR.	RT.I, BOX I37B NEW BERN, NC 28560
3	RICHARD DEAN & RONALD HARDISON	6302 HIGHWAY 55 E NEW BERN, NC 28560
4	RAYMOND E DUNN	PO BOX I389 NEW BERN, NC 28563
5	OSCAR A KRECHEL, JR	4493 HIGHWAY 55 E NEW BERN, NC 28560
6	LESLIE REEL BRINSON, ET AL	PO BOX 56 GRANTSBORO, NC 28529
7	AILEEN S LEE	4849 HIGHWAY 55 E NEW BERN, NC 28560
8	WILLIAM G CAHOON	5025 HIGHWAY 55 E NEW BERN, NC 28560
9	CLARA R BANKS	3058 JANERIO RD ARAPAHOE, NC 28510
10	EVELYN M STEPHENS	5071 HIGHWAY 55 E NEW BERN, NC 28560
II	JOHN C PETERSON	5291 HIGHWAY 55 E NEW BERN, NC 28560
I2	ALBERT ROACH	5264 HIGHWAY 55 E NEW BERN, NC 28560
I3	MAURICE W BENTON	PO BOX I25 STONEWALL, NC 28583
I4	CLAUDIA B ROACH	349 CARMAL DR MELBOURNE, FL 32940
I5	ELLEN B JOHNSON	1804 MASHBURN CIRCLE KINSTON, NC 28504
I6	D KEITH TYNDALL	6701 HIGHWAY 55 E NEW BERN, NC 28560
I7	HOWARD A REEL	7726 HIGHWAY 55 E NEW BERN, NC 28560
I8	JERRY CASEY	7389 HIGHWAY 55 E NEW BERN, NC 28560
I9	RUBY GOODWIN	7533 HIGHWAY 55 E NEW BERN, NC 28560

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMLICO COUNTY
PROJECT 8.II7090I (R-2539B)
NC 55 FROM EAST OF SR II27 TO EAST OF
SR II29
SHEET 5 OF 40 05/22/2002

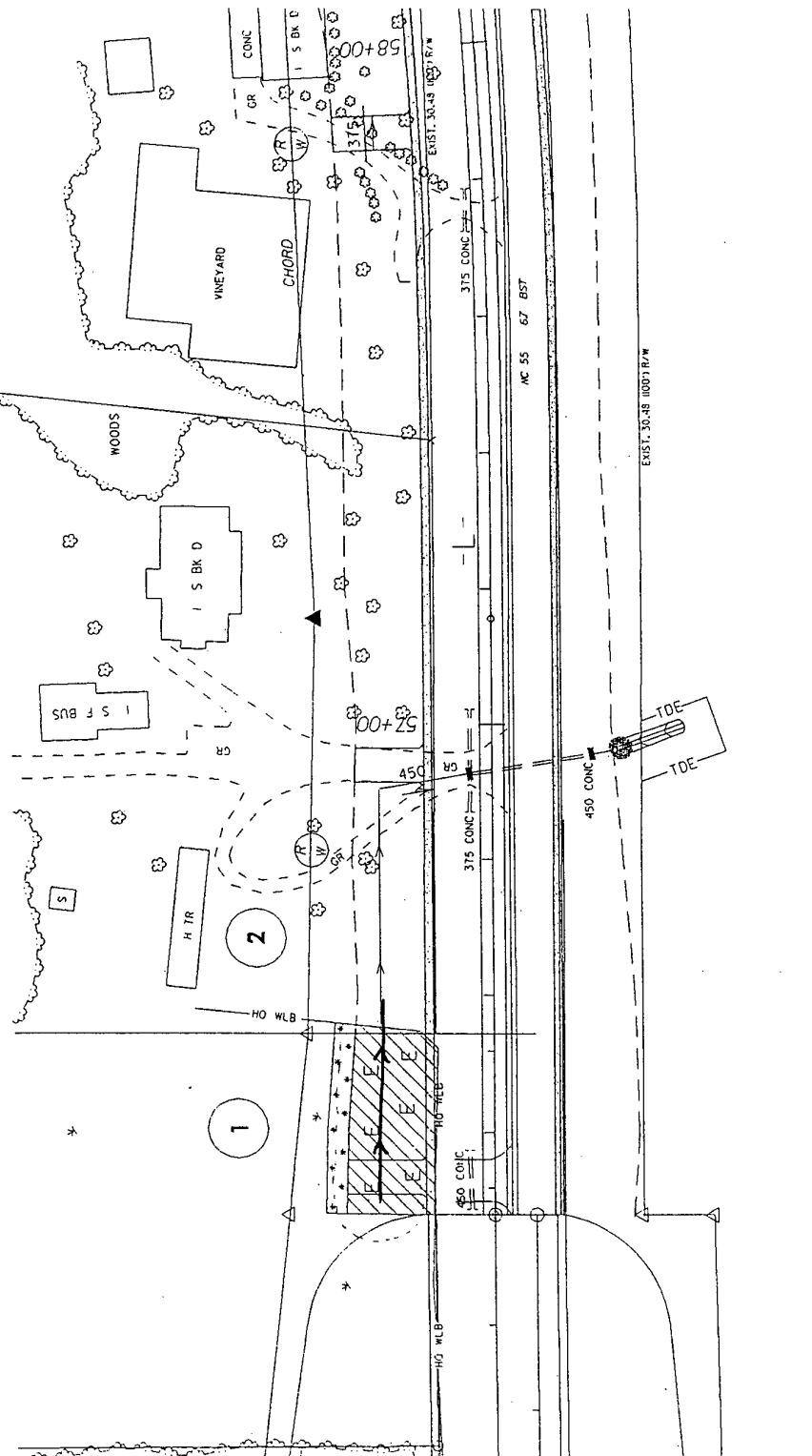
PROPERTY OWNERS

PARCEL NO.	NAMES	ADDRESSES
20	FH REEL JR HEIRS ALLEN K HARKER MYRTIE REEL LEE, HEIRS LESSIE REEL BRINSON	7726 HIGHWAY 55 E NEW BERN, NC 28560
21	ALICE B REEL	PO BOX 128 BRIDGETON, NC 28519
22	CAROLYN L DAVIS	8340 HIGHWAY 55 E NEW BERN, NC 28560
23	JAMES W LEE	3514 COUNTRY CLUB RD MOREHEAD CITY, NC 28557
24	MRS ROY CURTIS	7104 CATLETT ST SPRINGFIELD, VA 22151
25	ELSIE SPIVEY	1822 HIGHWAY 306 N NEW BERN, NC 28560
26	LOTTIE NILES, HEIRS	402 IVY CRESCENT CHESAPEAKE, VA 23325
27	MARY BROWN	PO BOX 1121 NEW BERN, NC 28560
27A	NEHEMIAH WOODARD	8875 HWY. 55 E. NEW BERN, NC 28560
28	BEASLEY FM ACQUISITION GROUP CORP	3033 RIVIERA DR *200 NAPLES, FL 34103
29	RWR LOGGING, INC.	RT. 6 BOX 327-A GOLDSBORO, NC 27530
30	JAMES R KRAUSS	193 BENNETT-TINGLE RD NEW BERN, NC 28560
31	JOHN T HERRING, JR.	810 AIRPORT RD NEW BERN, NC 28560
32	ELIZABETH HARRIS WOZNIAK	300 LEE STREET EMPORIA, VA 23847

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMLICO COUNTY
PROJECT 8.II7090I (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129
SHEET 6 OF 40 05/22/2002

SITE 1 -L- STA. 56+30 TO 56+55 LT



Site 1

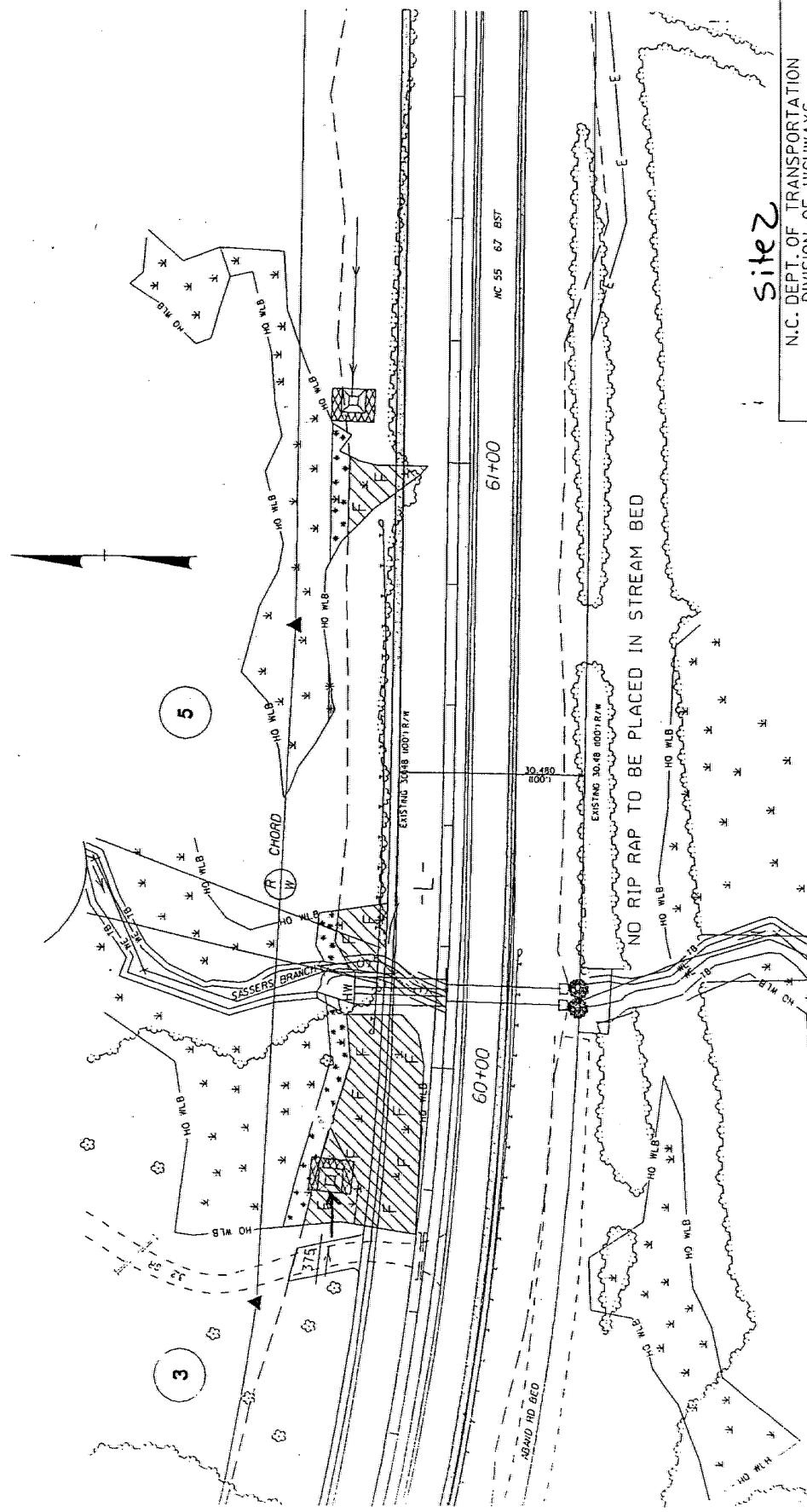
DENOTES EXCAVATION
IN WETLAND

DENOTES MECHANIZED
CLEARING

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 81170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129

REV. 04/04/03
12/18/2002
Sheet 7 of 40

SITE 2 L= STA. 59 + 70 TO 61 + 00 LT



Site 2

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 8.1170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129
REV. 04/04/03
12/18/2002

SHEET 8 OF 40

DENOTES EXCAVATION
IN WETLAND

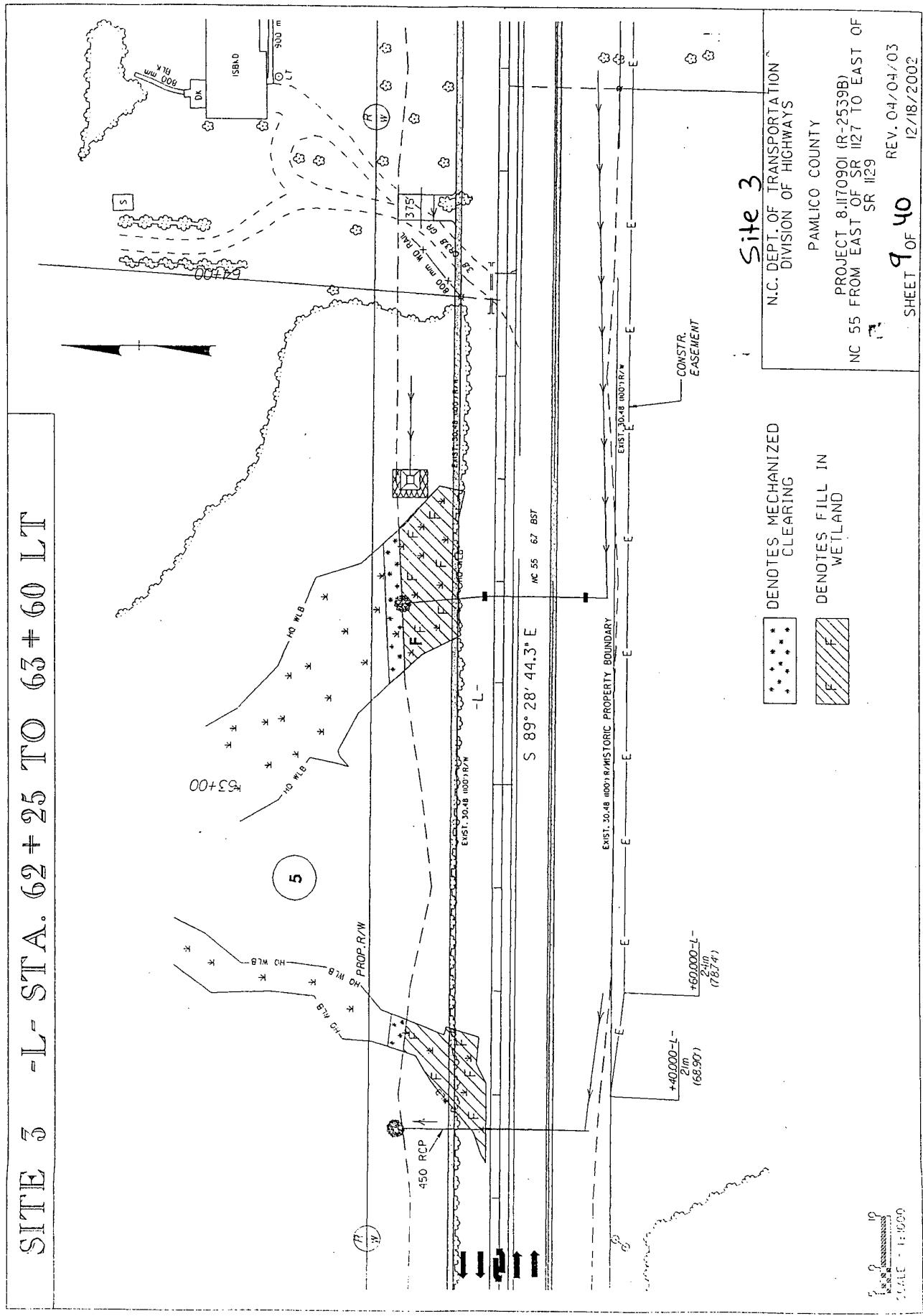
DENOTES MECHANIZED
CLEARING

DENOTES FILL IN
WETLAND

DENOTES FILL IN
SURFACE WATER

FILE : 1:100'

SITE 5 STA. 62+25 TO 63+60 LT



Site 3

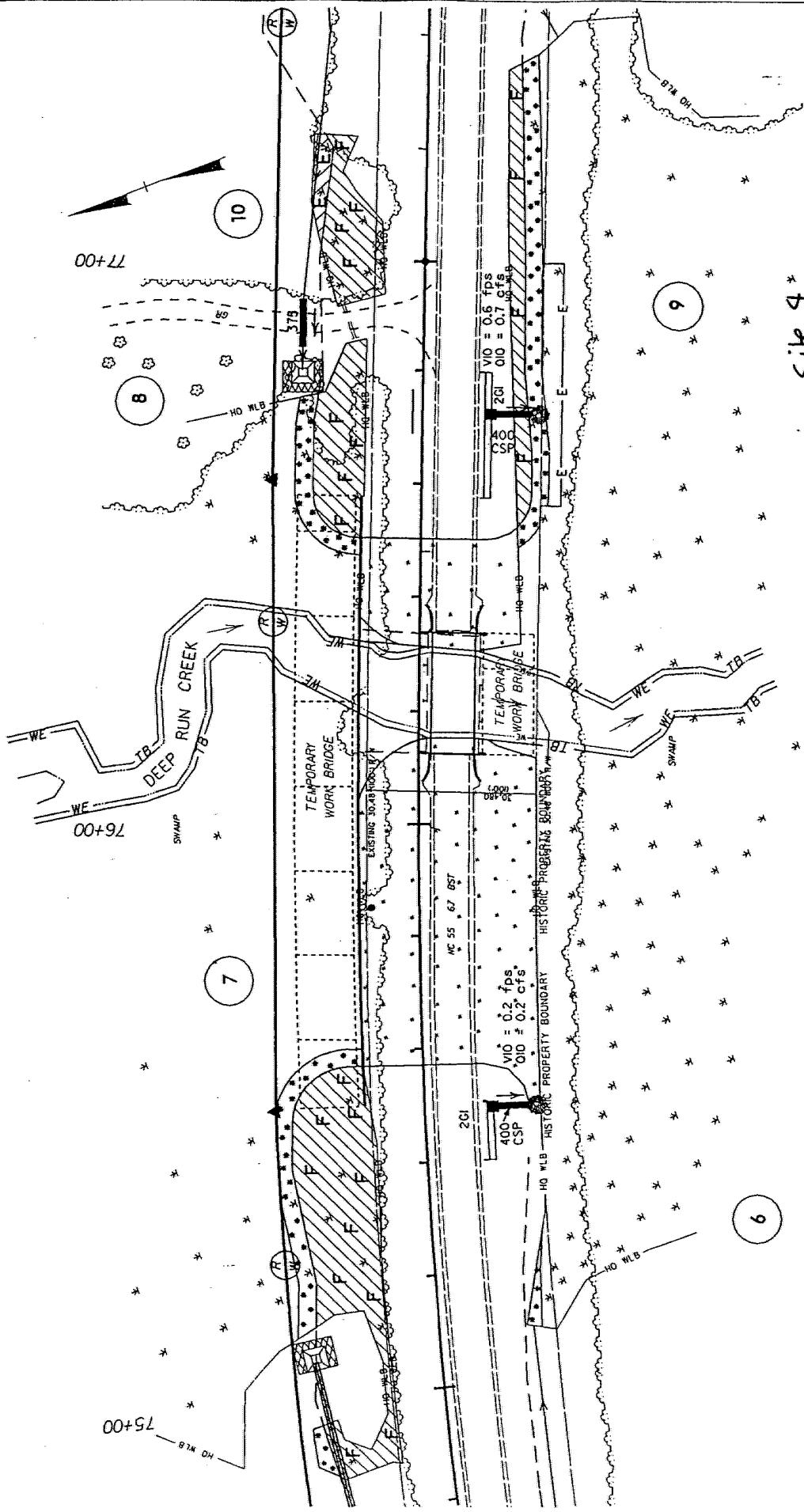
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMlico COUNTY
PROJECT 8.II7090I (R-25539B)
NC 55 FROM EAST OF SR II27 TO EAST OF
SR II29

REV. 04/04/03
12/18/2002

Sheet 9 of 40

SITE 4 -L- STA. 74+85 TO 77+40 RT & LT



Site 4

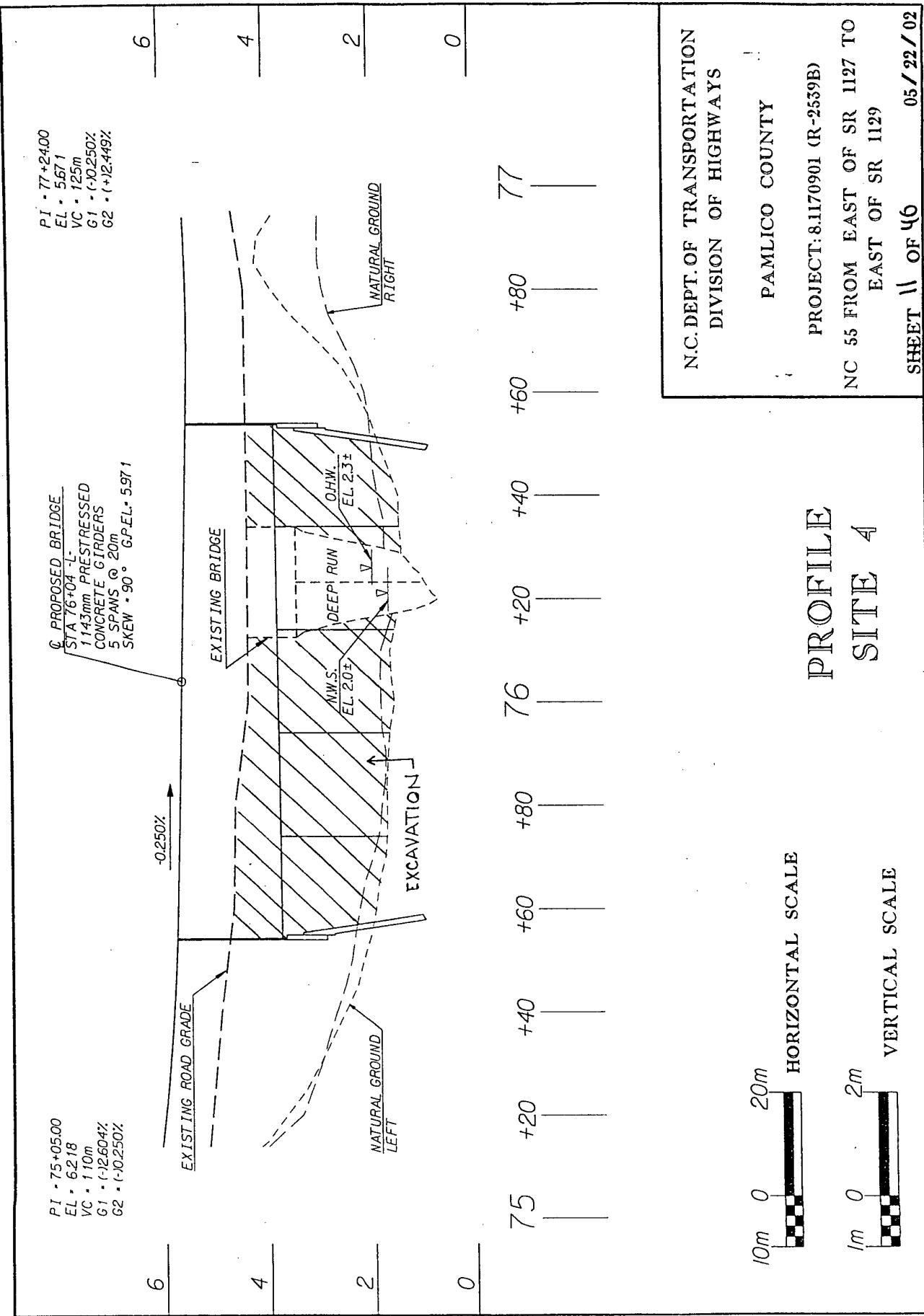
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

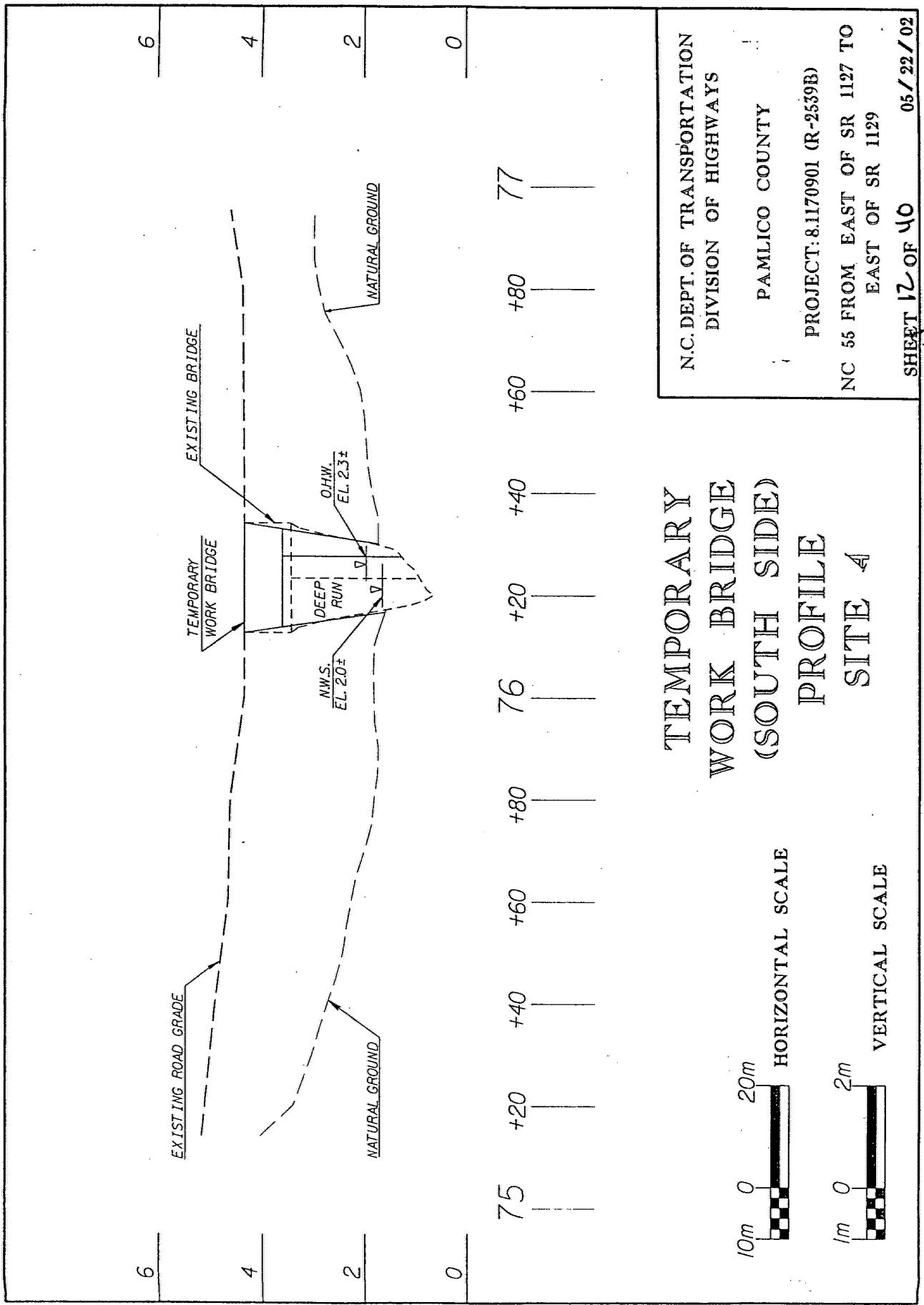
PAMILICO COUNTY
PROJECT 8.II70901 (R-2539B)
NC 55 FROM EAST OF SR II27 TO EAST OF
SR II29

REV. 04/04/03
12/18/2002
SHEET 10 OF 40

- [Symbol: Square with dots] DENOTES WETLAND
- [Symbol: Square with diagonal lines] DENOTES PROPERTY
- [Symbol: Square with horizontal lines] DENOTES FILL IN WETLAND
- [Symbol: Square with diagonal lines] DENOTES EXCAVATION IN WETLAND
- [Symbol: Square with vertical lines] DENOTES MECHANIZED CLEARING

Scale : 1:1000





N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMLICO COUNTY
PROJECT: 8.1170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO
EAST OF SR 1129
SHEET 12 OF 40 05/22/02

TEMPORARY
WORK BRIDGE
(SOUTH SIDE)
PROFILE
SITE 4

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

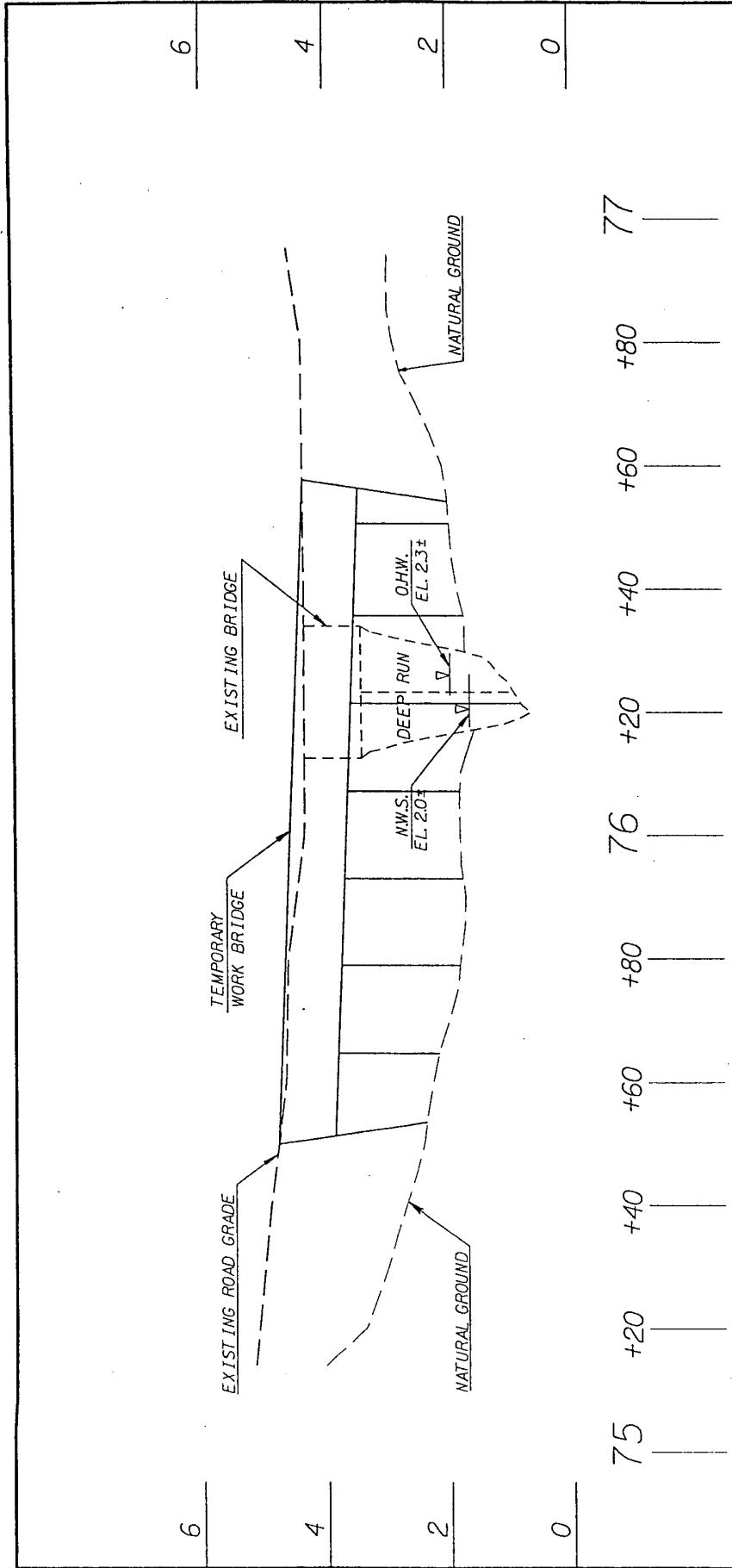
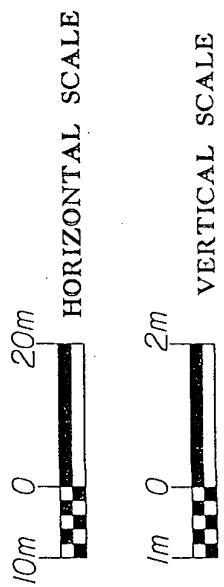
PAMLICO COUNTY

PROJECT: 8.1170901 (R-2539B)

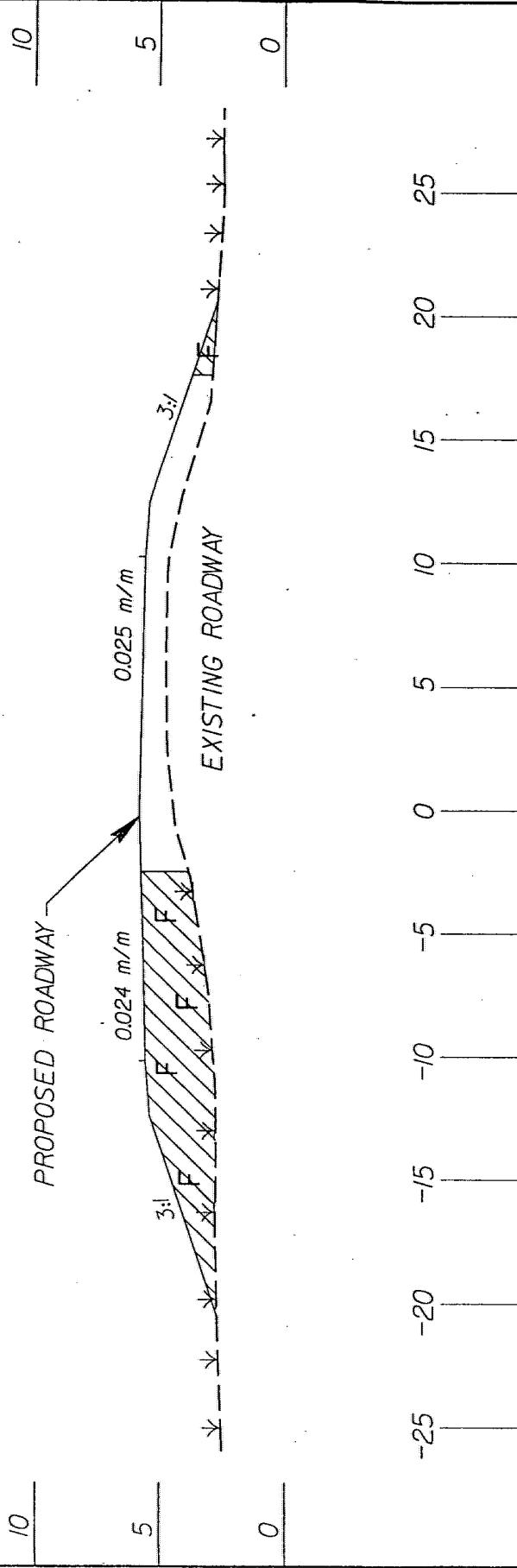
NC 55 FROM EAST OF SR 1127 TO
EAST OF SR 1129

SHEET 13 OF 40 05 / 22 / 02

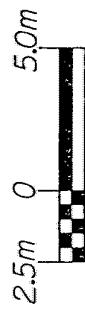
TEMPORARY
WORK BRIDGE
(NORTH SIDE)
PROFILE
SITE 4



TYPICAL SECTION OF NEW ROADWAY
FROM 74+85 TO BEGIN BRIDGE AND FROM END OF BRIDGE TO 77+40



SECTION VIEW
SITE 4



DENOTES FILL
WETLAND

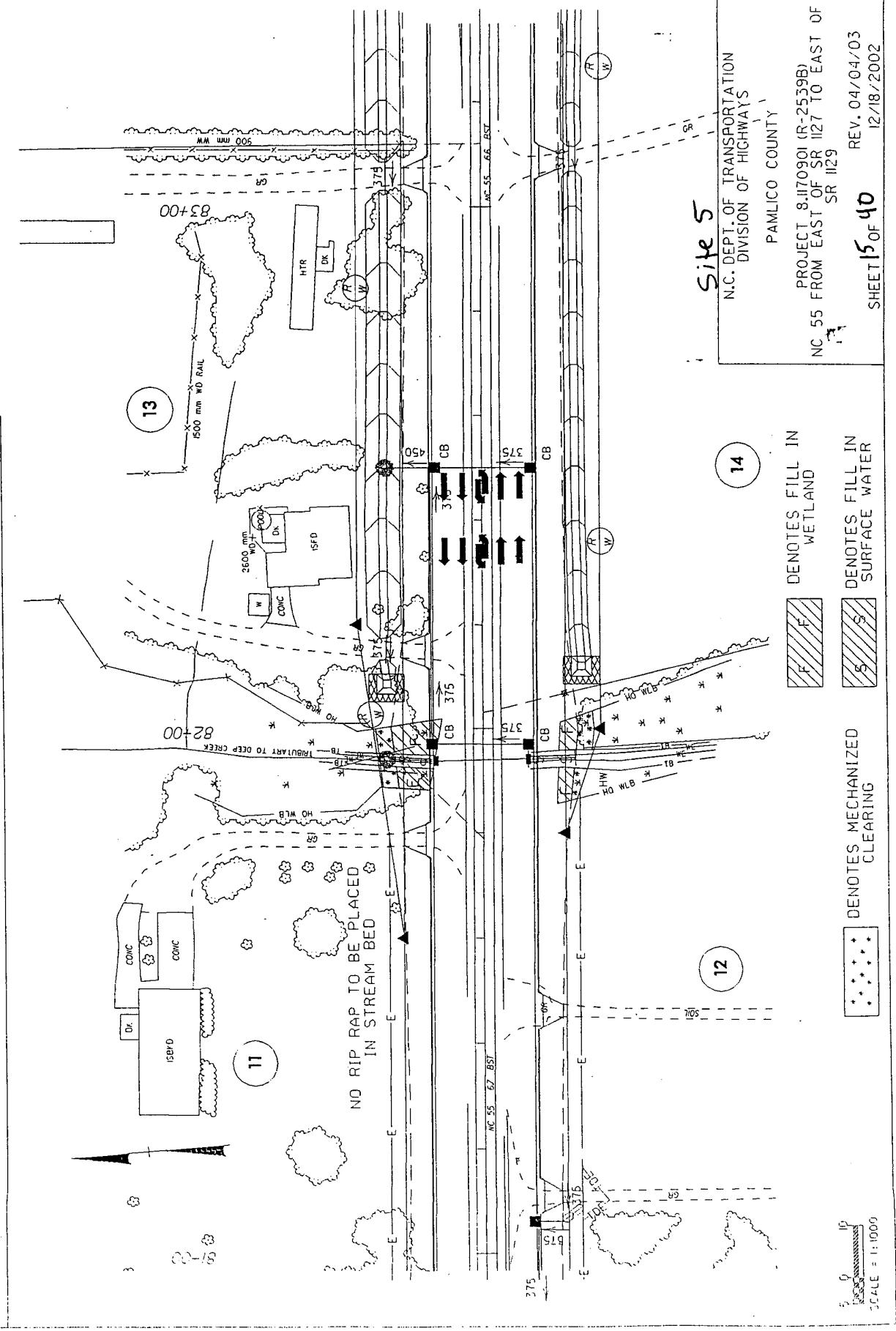
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMILICO COUNTY

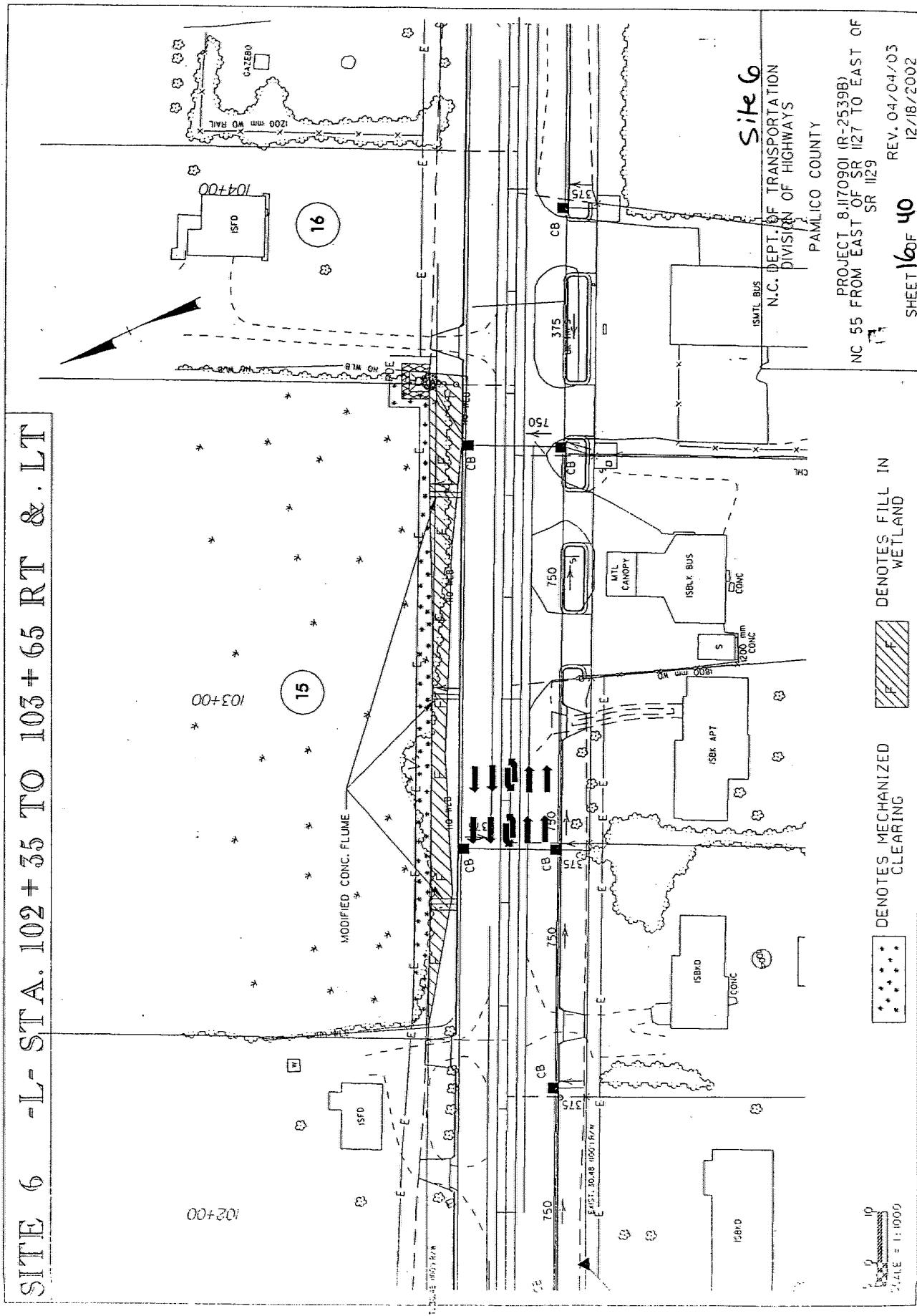
PROJECT: 8.1170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO
EAST OF SR 1129

SHEET 14 OF 40 05 / 22 / 02

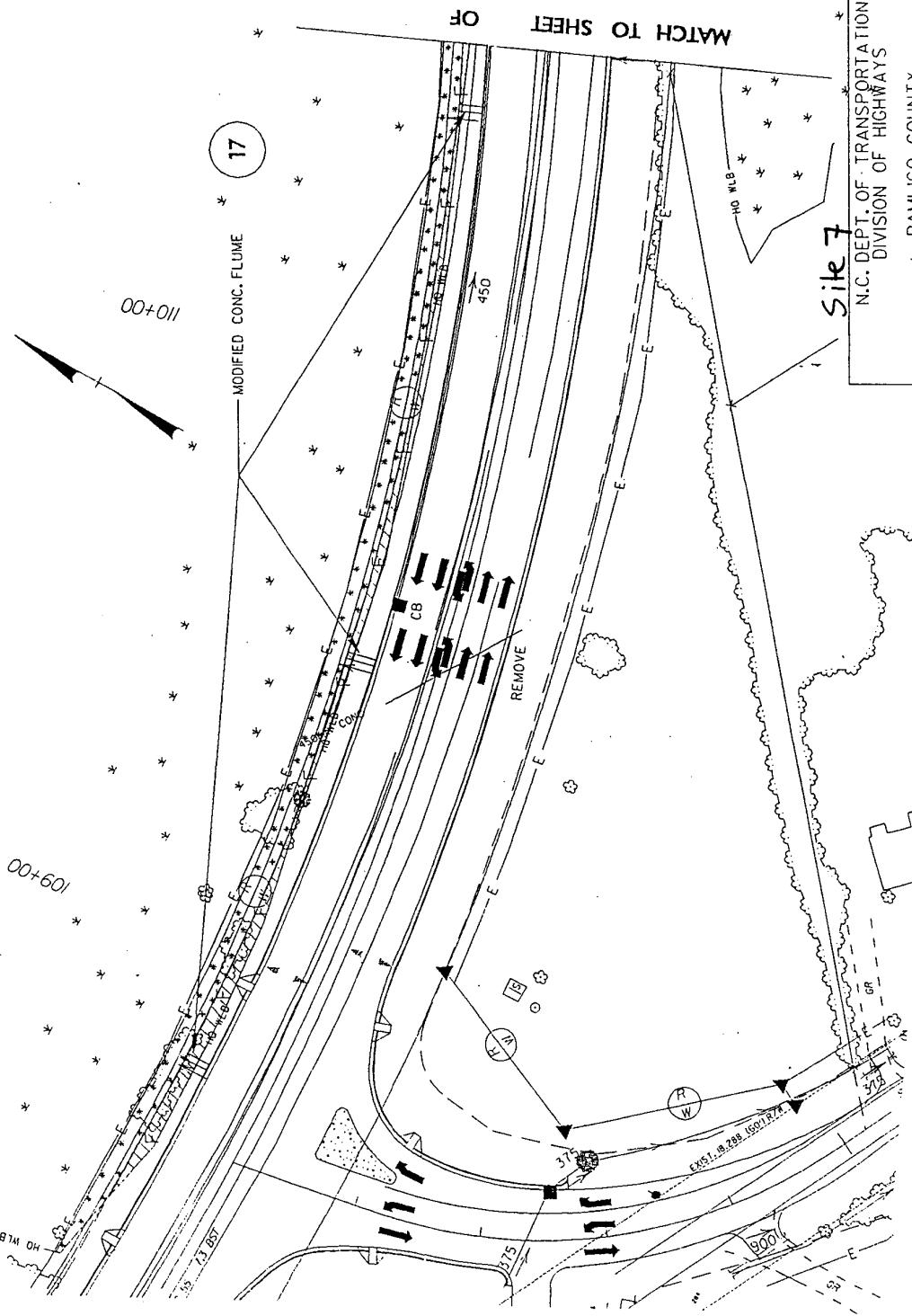
SITE 5 - STA. 81+85 TO 82+00 RT & LT



SITE 6 -L- STA. 102+35 TO 103+65 RT & LT



SITE 7 -L- STA. 108 + 50 TO 110 + 50 RT & LT



MATCH TO SHEET OF 17

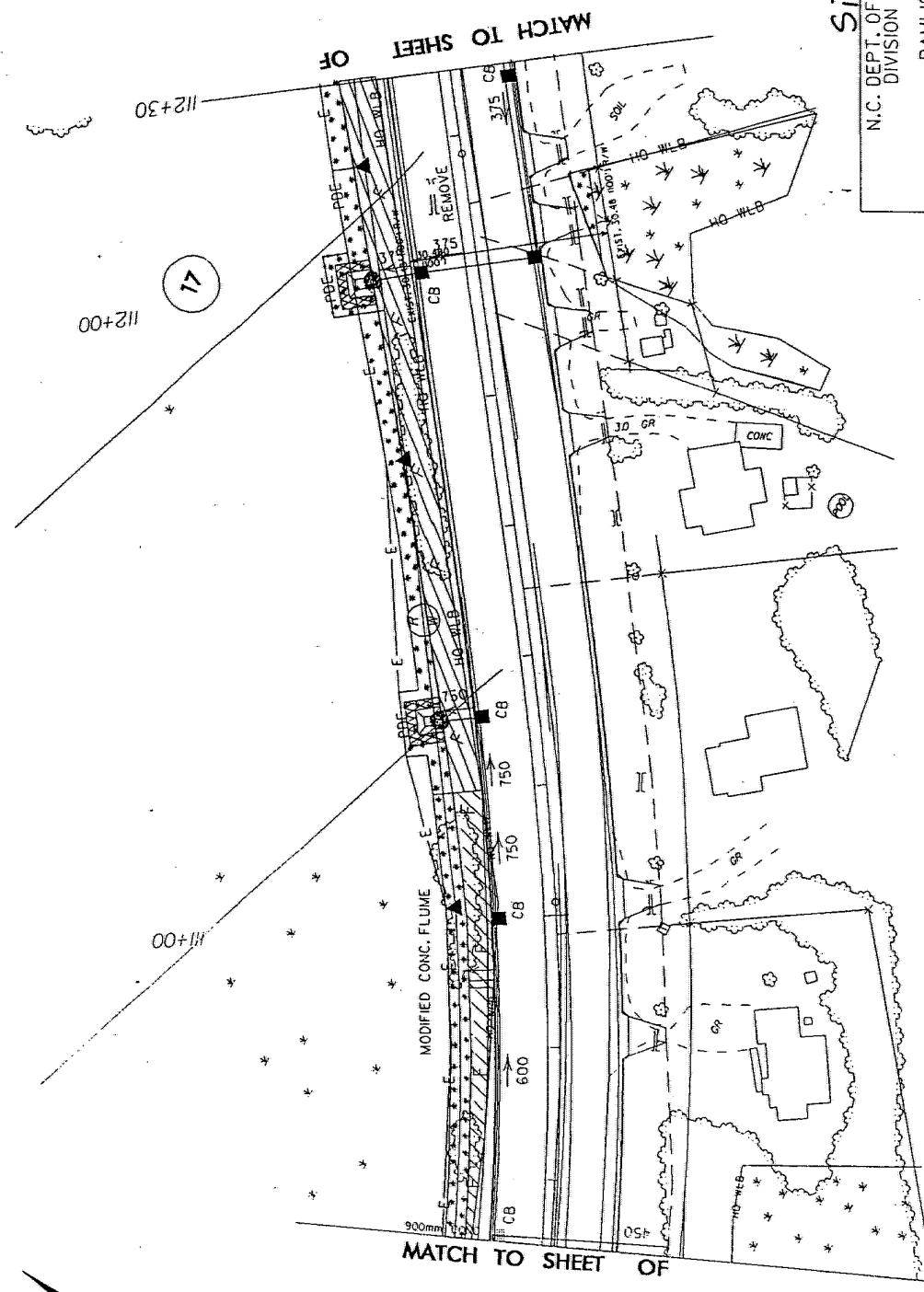
NC. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY

PROJECT 8.1170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129

REV. 04/04/05
12/18/2002

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SITE 7 -L- STA. 110 + 50 TO 112 + 30 RT & LT



Site 7

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMlico COUNTY

PROJECT 8.1170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129

SCALE = 1:1000
10

DENOTES MECHANIZED
CLEARING

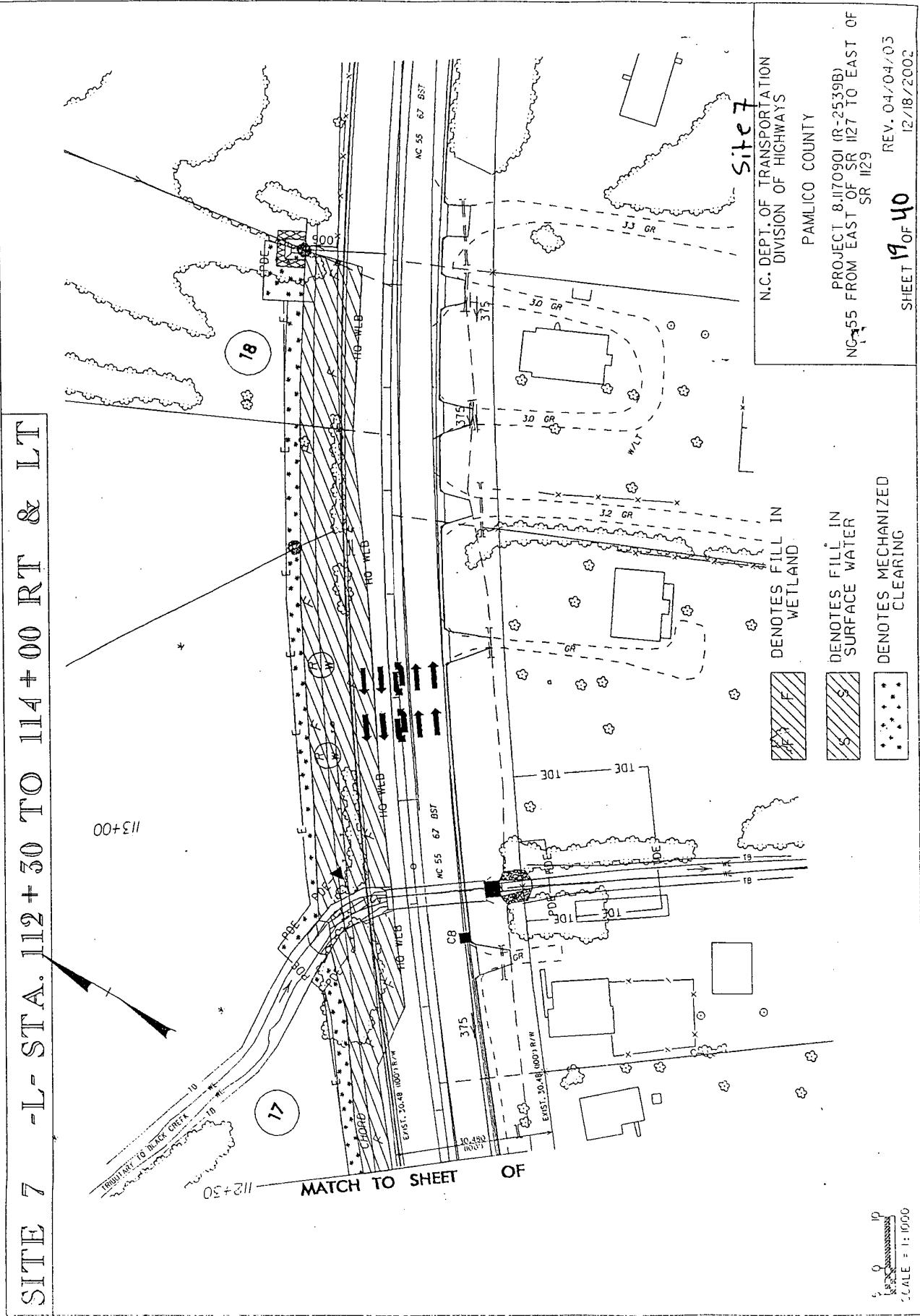


FILL IN
WETLAND

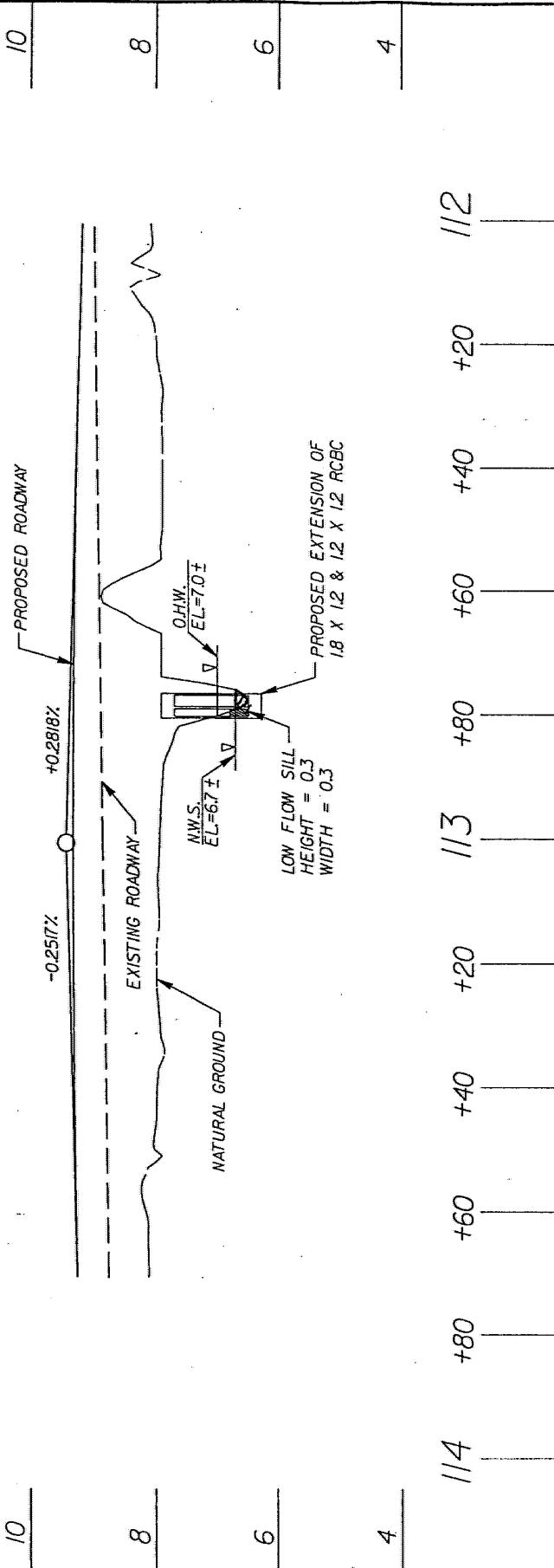


REV. 04/04/03
12/18/2002
SHEET 18 OF 40

SITE 7 - STA. 112+30 TO 114+00 RT & LT

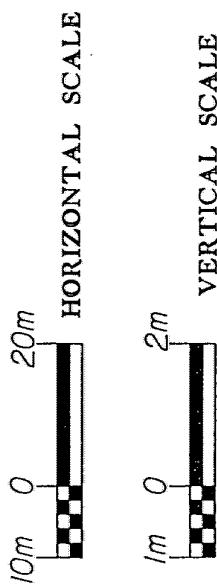


$PI = 113+000.000$
 $EL = 9.417 m$
 $VC = 170 m$



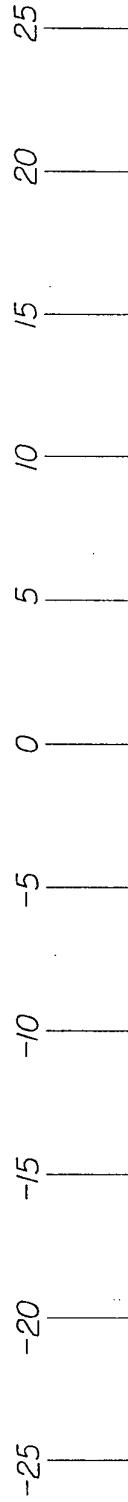
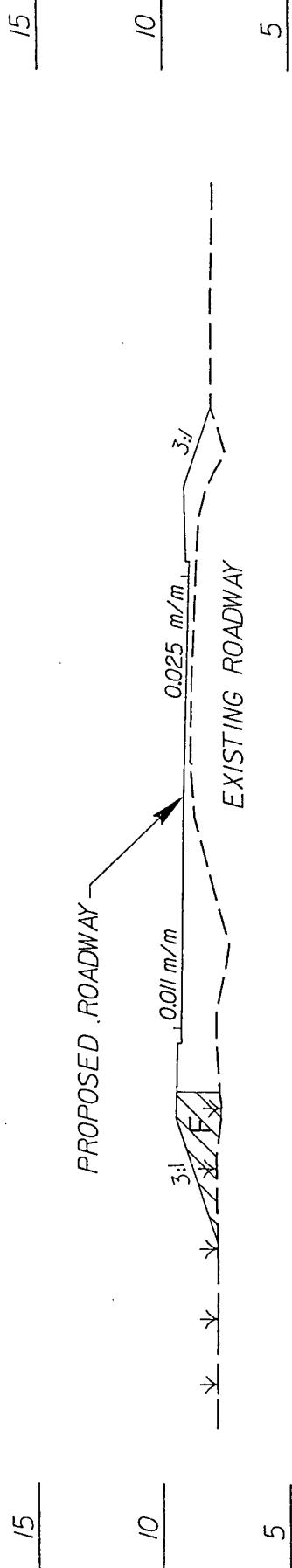
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROFILE SITE 7



PROJECT: 8.1170901 (R-2539B)
 NC 55 FROM EAST OF SR 1127 TO
 EAST OF SR 1129
 SHEET ZO OF 40 05 / 22 / 02

TYPICAL SECTION OF NEW ROADWAY
FROM 108+50 TO 114+00



SECTION VIEW
SITE 7



N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

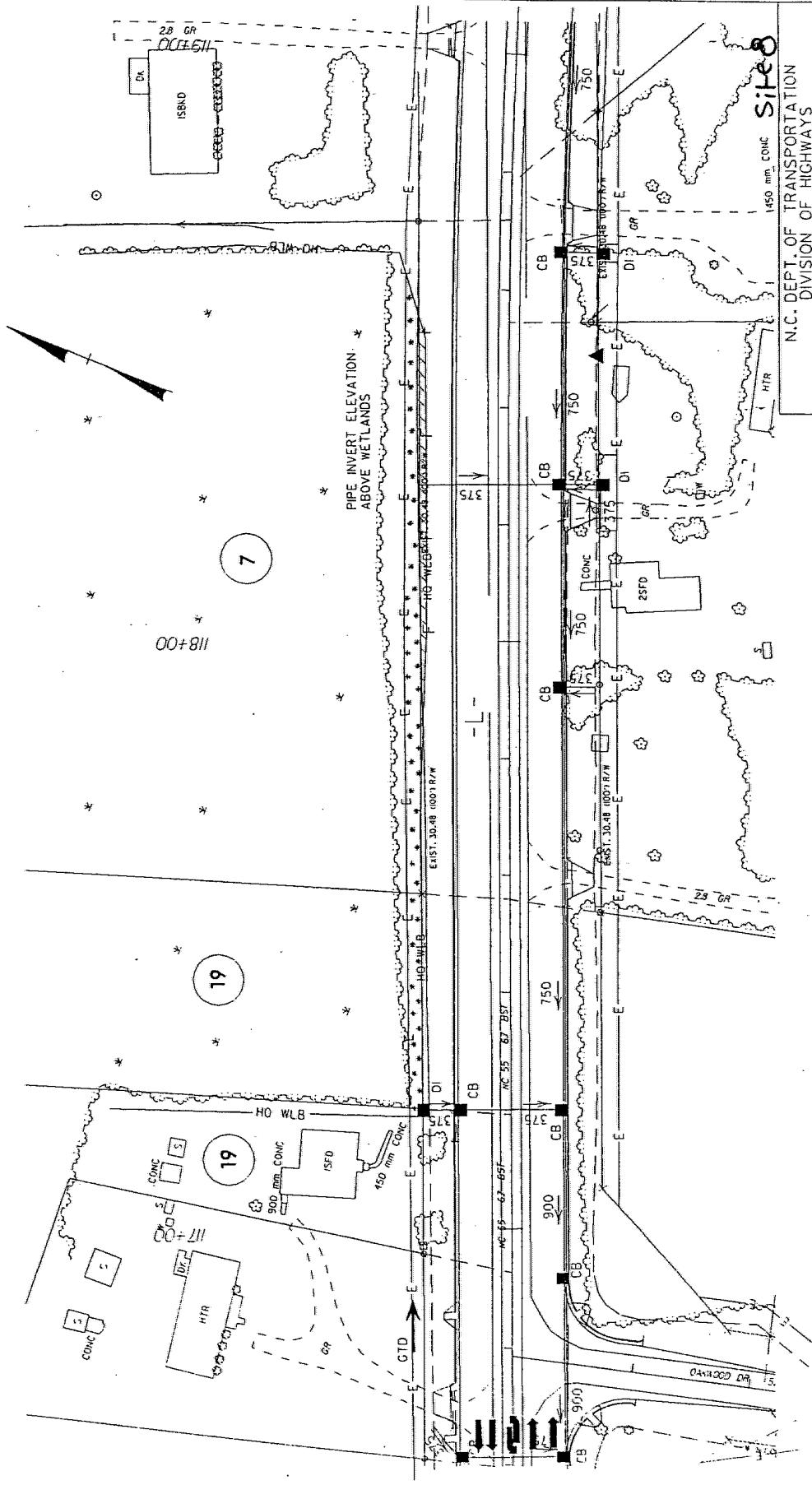
PAMLICO COUNTY

PROJECT: 81170901 (R-2539B)

NC 55 FROM EAST OF SR 1127 TO
EAST OF SR 1129

SHEET 21 OF 40 05 / 22 / 02

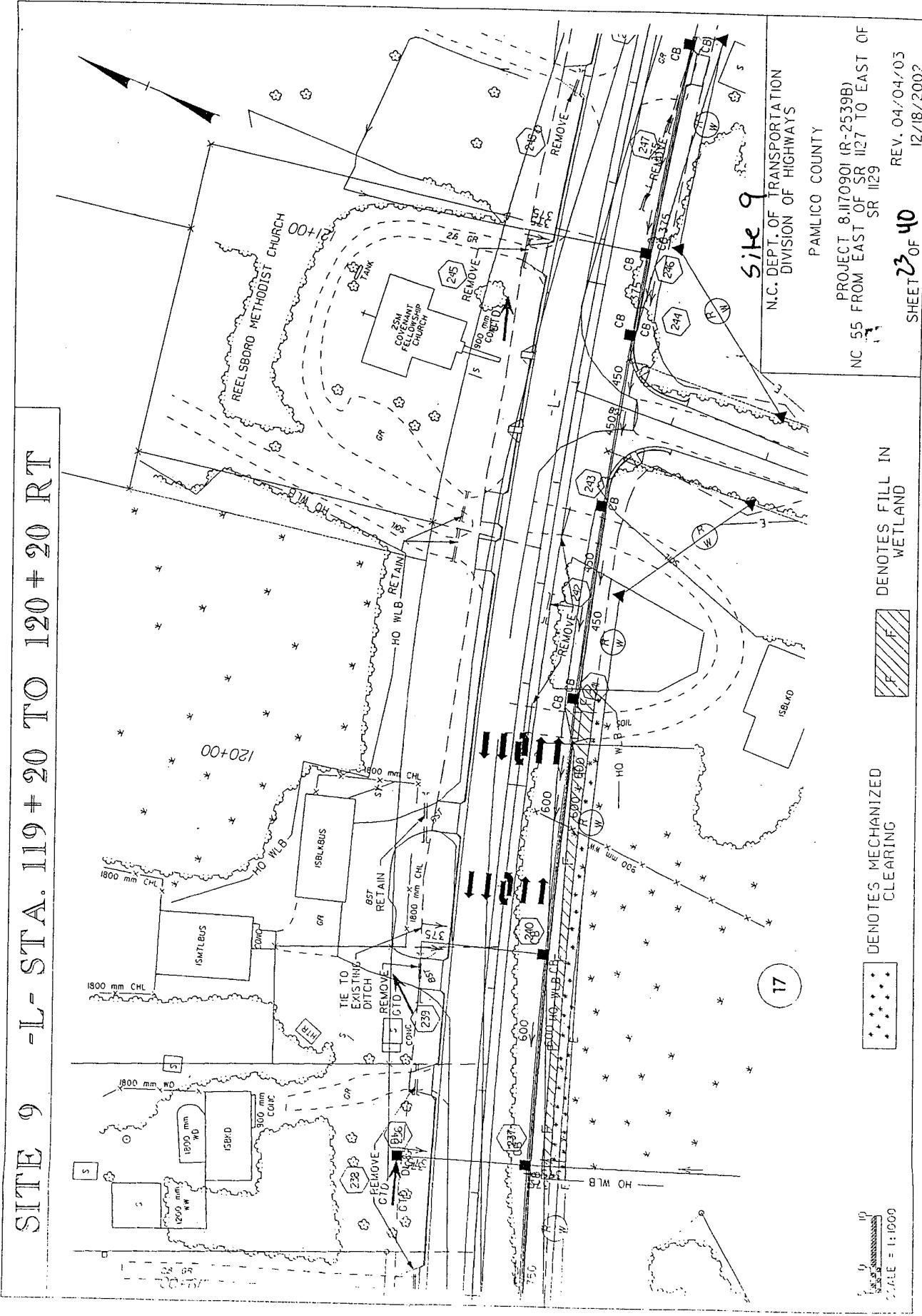
SITE 8 -L- STA. 117 + 20 TO 118 + 60 LT



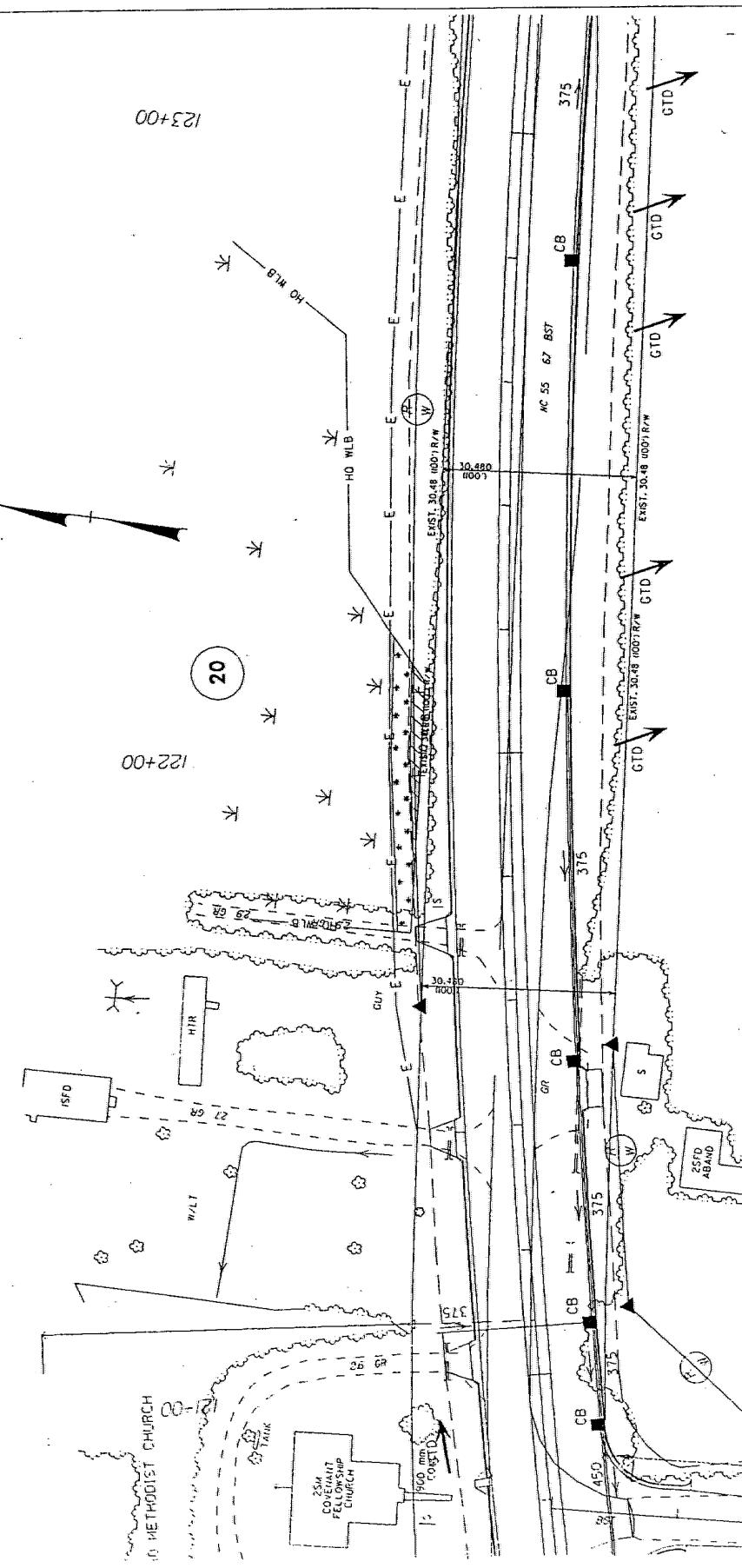
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 81170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129
SHEET 22 OF 40
REV. 04/04/05
12/18/2002

10
SCALE = 1:6000

SITE 9 - STA. 119+20 TO 120+20 RT



SITE 10 - L- STA. 121 + 70 TO 122 + 20 LT



Site 10

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMLICO COUNTY

PROJECT 8.1170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF

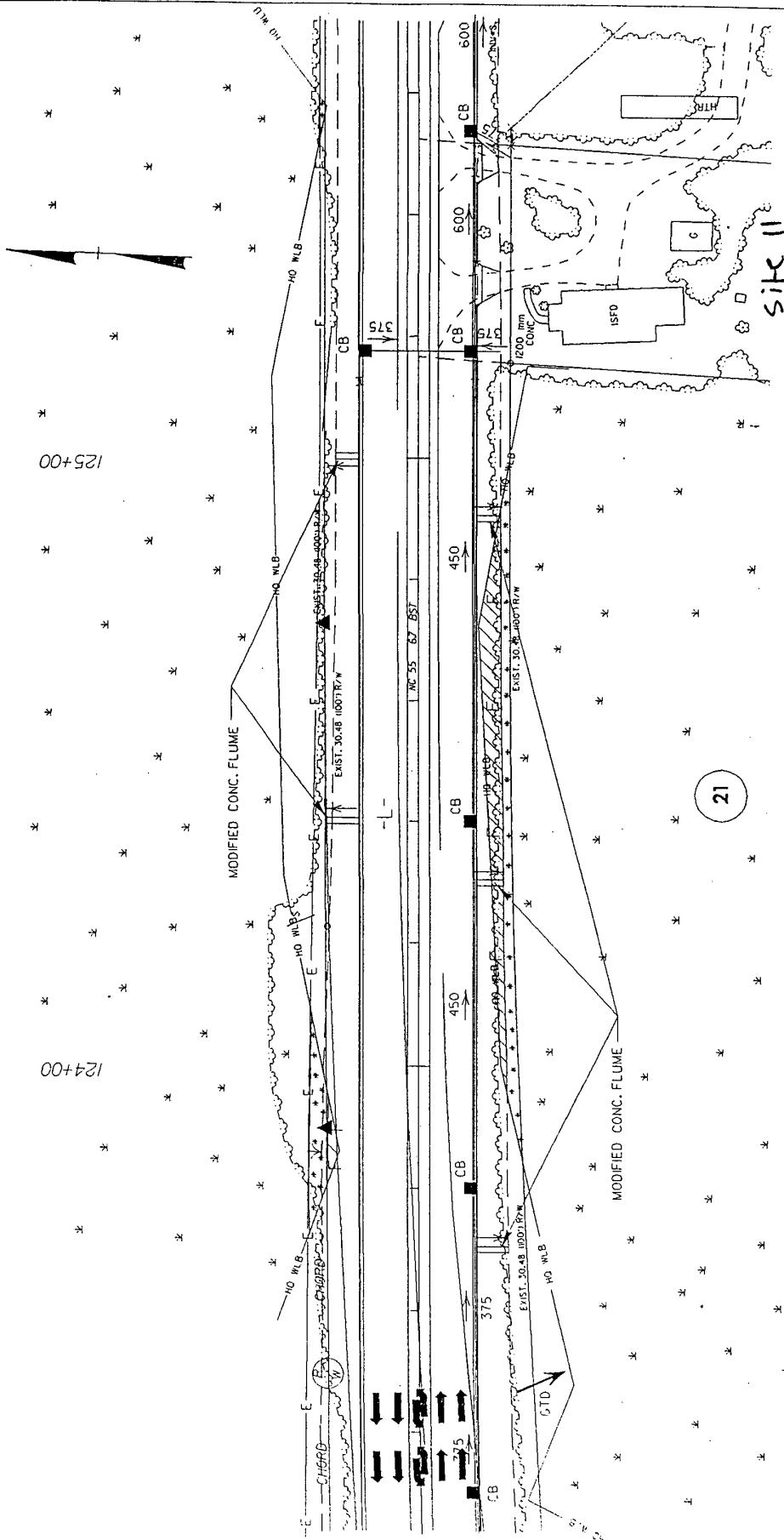
SR 1129

DENOTES FILL IN
WETLAND

SCALE 1:1000

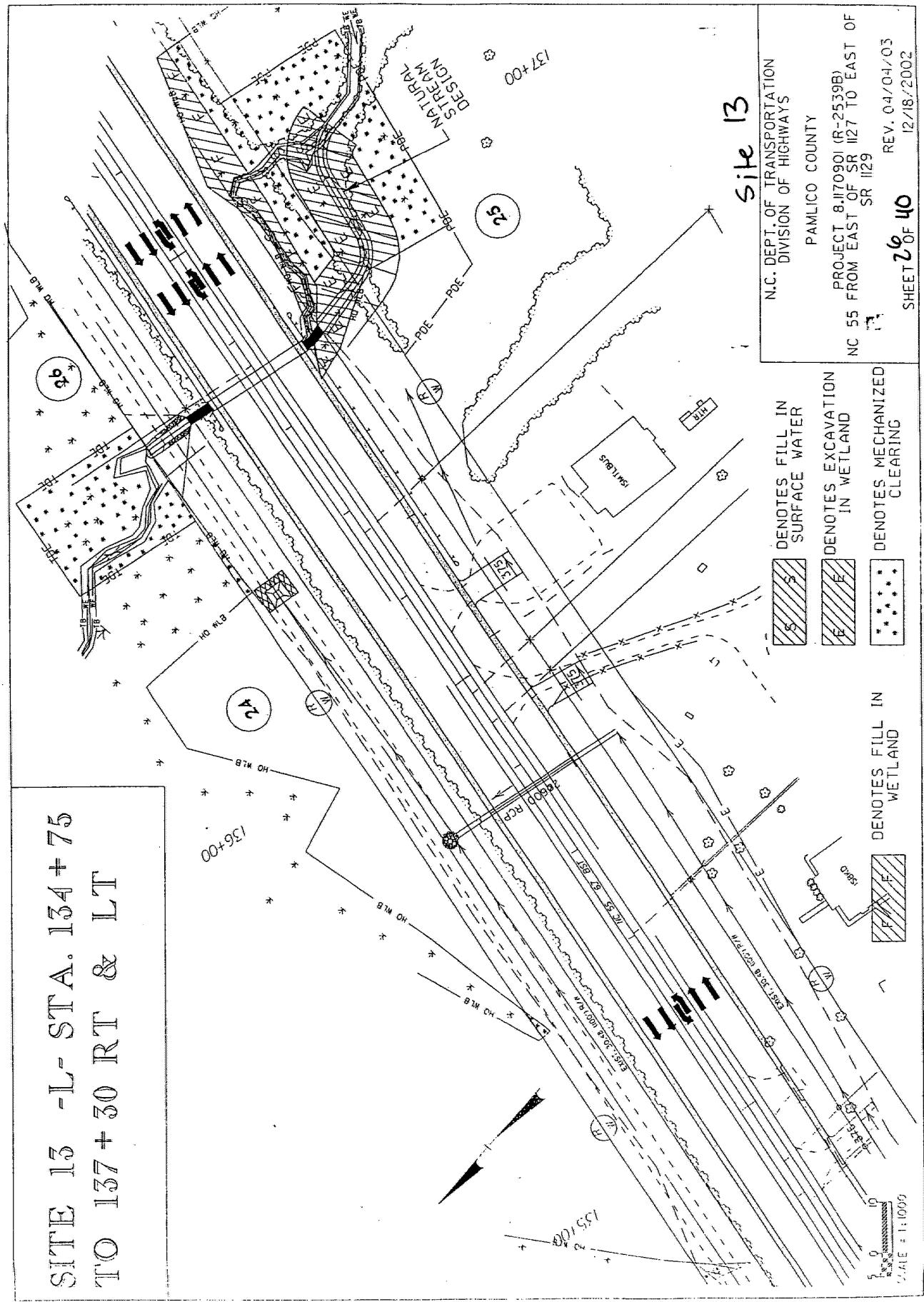
REV. 04/04/03
12/18/2002
SHEET 24 OF 40

SITE 11 - L- STA. 123 + 75 TO 125 + 60 RT & LT



N.C. DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS	
PAMLICO COUNTY	
PROJECT 8.II70901 (R-2539B)	
NC-55 FROM EAST OF SR II27 TO EAST OF SR II29	
REV. 04/04/03 12/18/2002	
SHEET 25 OF 40	
DENOTES FILL IN WETLAND	DENOTES MECHANIZED CLEARING
SCALE : 1:1000	

SITE 13 -L- STA. 134 + 75
TO 137 + 30 RT & LT



NCDOT Project I.D. R-2539B
Pamlico County, NC
NC 55 from East of SR 1127 to
East of SR 1129

Prepared by: MA Engineering Consultants, Inc.
598 East Chatham Street, Suite 137
Cary, North Carolina 27511

July 1, 2002

NATURAL CHANNEL DESIGN

WEST FORK GOOSE CREEK TRIBUTARY

Right of Project Station -L- 136+90

The construction of the proposed project will require that a portion of West Fork Goose Creek Tributary be relocated from Project Station -L- 136+73 RT. to Station 137+05 RT., some 41 m (135') in length. The proposed channel relocation is designed according to "natural channel" design principles proposed by Dave Rosgen.

The drainage area is in Pamlico County and is rural with woods in nature. It is not expected to be developed in the future. The stream was found to be intermittent in nature. Neuse River Buffer Rule will be applied for the stream.

There are no hydraulic gage data available neither on this stream nor on nearby streams. Current discharges were estimated using NCDOT procedures for rural watersheds.

Existing Channel

The natural skew angle for the stream crossing is about 50 degree. Most of the natural channel along this reach has been extensively channelized and straightened in the past as the result of the 90-degree box culvert crossing. Most of the floodplain vegetation on the north side has been removed to accommodate the existing roadway embankment. The current channel is parallel to the roadway and has a bottom of silt. The entire channel (from Station -L- 136+72 RT to Station 137+05 RT) was surveyed in detail for the purpose of channel classification, and was found to be an E6 type of stream according to the Rosgen classification scheme.

Reference Reach

Because of the altered state of the existing channel, a "reference reach" of this stream was also surveyed in order to classify its unaltered natural condition. The selected reach is located some 42 m (138') upstream of the NC 55 crossing. A 66 m (217') long reach was surveyed in detail.

A downstream reach was not selected for the following reasons:

1. The distance from the existing box culvert to the confluence with West Fork Goose Creek is only 60m (197'). The backwater effect of the creek has significant impact on the reach.
2. There is an abandoned railroad embankment across the channel and entire floodplain. It has impact on the natural condition of the reach.

The upstream reach was selected because it is natural and has no impact of human activities for the entire floodplain. It has about the same drainage area as the existing channel site.

Analysis of reference reach's data lead to a stream classification of E6. This portion of channel has a silt bed. Water depth at riffle and pool were about 0.04 m (0.13') and 0.14 m (0.46'), respectively.

Proposed Channel

The proposed channel design has an E6 classification. Design data is given in the attached data table along with existing reach and reference reach data. Channel gradient is controlled by the proposed 1.8m x 1.2m (6' x 4') reinforced concrete box culvert extension downstream and by the natural channel tie-in upstream. Channel sinuosity closely matches that of the reference reach. Mean "bankfull" depth was set at 0.26 m (0.85') close to the measured depth of 0.25 m (0.82') for the reference reaches. This gives a maximum bankfull depth of 0.37 m (1.21'). Above bankfull depth, it is proposed to excavate a flood plain on both sides of meander bend, resulting in approximately an 11.4 m (37') wide flood plain (including the channel). The floodplain width for the reference reach is about 12 m (39').

It is believed that by forming a floodplain above bankfull depth channel stability will be enhanced by reducing velocities for those discharges above the bankfull discharge. This should lead to a more stable channel during the stream form and fluvial processes. It is anticipated that the proposed channel will have a silt bottom. Pool depths of 0.1 m (0.3') are proposed at outside bends of meanders. This is the average depth of pools in the reference reach.

Proposed channel stabilization is shown on the attached detail sheet. It is anticipated that channel banks will be planted with native trees and shrubs above bankfull depth.

1
824004
9
06

The existing drainage area is rural with woods in nature. The only land-disturbing activities may be the agricultural practices near the boundary of the watershed. Very thick and tall vegetation/brush were found along both sides of the stream in the wooded area. They were functioning as natural sediment control filters. During field study, the water in the stream was clean and clear. No visible suspended sediment or clogging of the stream was found. This indicated that reduction of in-stream photosynthesis due to suspended sediment was not likely. The W/D ratio of the reference stream indicated that shear stress was not concentrated near the bank region and the bank erosion was not accelerated. Observed vegetation in the channel and lichens on the streambed also indicated that the bank was stable. The increase in sediment supply to the channel developing from bank erosion and gradually losing its capability to transport sediment was not likely for the stream.

Proposed land use is rural in natural and no development is expected in the future. Impervious area and land-disturbing activities due to farming will not be increased. Thus, the discharge and the sediment input will not be increased. Neuse River Buffer Rule will be applied and all storm drain outlets will be outside the buffer for filtration. Therefore, the potential sediment transport to the stream will be minimized in the future.

The existing stream bed material for the reference reach is silt with uniform size throughout the whole reach. No gravel or pebble was found. Therefore, a pebble count was not feasible. The proposed channel relocation is only 41m (135') with 0.34% slope.

on 30 b2 forms

Appendix B

Morphological Measurement Table

Variables	Existing Channel	Proposed Reach	USGS Station	Reference Reach
1. Stream type	Intermittent	Intermittent		Intermittent
2. Drainage area	109 Ac	109 Ac		109 Ac
3. Bankfull width	3.6'	7.8'		7.9'
4. Bankfull mean depth	1.3'	0.9'		0.8'
5. Width/depth ratio	2.80	9.20		9.50
6. Bankfull cross-sectional area	4.6 ft ²	6.6 ft ²		6.6 ft ²
7. Bankfull mean velocity	4.1 ft/s	2.1 ft/s		3.3 ft/s
8. Bankfull discharge, cfs	24.7 cfs	24.7 cfs		24.7 cfs
9. Bankfull max depth	1.7'	1.2'		1.2'
10. Width of flood prone area	69'	37'		39'
11. Entrenchment ratio	19.0	4.8		5.0
12. Meander length	131'	131'		131'
13. Ratio of meander length to bankfull width	36.4	16.8		16.7
14. Radius of curvature	26'	26'		26'
15. Ratio of radius of curvature to bankfull width	7.3	3.4		3.3
16. Belt width	36'	41'		41'
17. Meander width ratio	9.1	4.2		4.2
18. Sinuosity (stream length/valley length)	1.09	1.14		1.15
19. Valley Slope	1.42 %	0.39 %		1.13 %
20. Average slope	1.30 %	0.34 %		0.98 %
21. Pool slope	1.30 %	0.30 %		0.98 %
22. Ratio of pool slope to average slope	1.0	1.0		1.0
23. Maximum pool depth	0.5'	0.6'		0.3'
24. Ratio of pool depth to average bankfull depth	0.41	0.69		0.40
25. Pool width	1.6'	3.0'		4.4'
26. Ratio of pool width to bankfull width	0.45	0.38		0.56
27. Pool to pool spacing	26'	66'		27'
28. Ratio of pool to pool spacing to bankfull width	7.3	8.4		3.4
29. Ratio of lowest bank height to bankfull height (or max bankfull depth)	0.61	0.79		0.44

NC DEPT. OF TRANSPORTATION

PAMLICO COUNTY

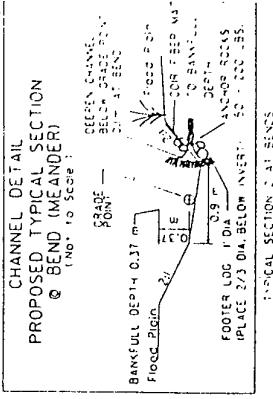
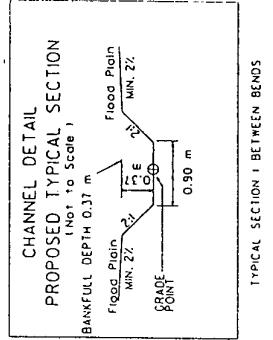
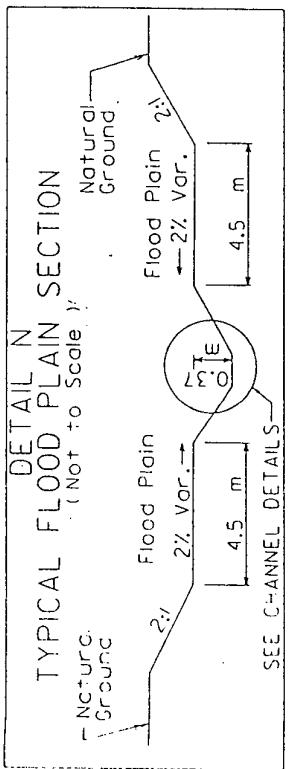
PROJECT: R-2539B

WEST FORK GOOSE CREEK TRIBUTARY

-L- 136+90 RT

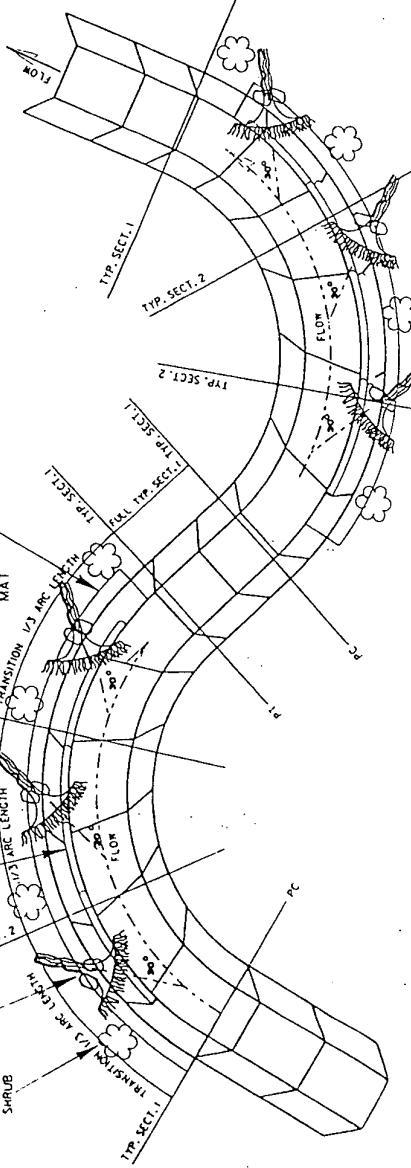
SHEET 4 OF 5 6-18-02

NATURAL CHANNEL DESIGN TYPICALS



NOTES:

NUMBER OF ROOTMADS INSTALLED TO BE DETERMINED ON SITE
ROOTMADS TO BE SPACED AS DIAMETER OF 30°C BASE
FOOTER LOC ANCHOR ROCK TO BE PLACED ON THE DOWNSTREAM END
OF EACH FOOTER LOC SO THAT IT IS LEAVING 15-20' OF CLEARANCE
ON THE SIDE AWAY FROM THE CHANNEL.



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMLICO COUNTY

PROJECT: R-2559B

-L STATION 156 + 90 RT

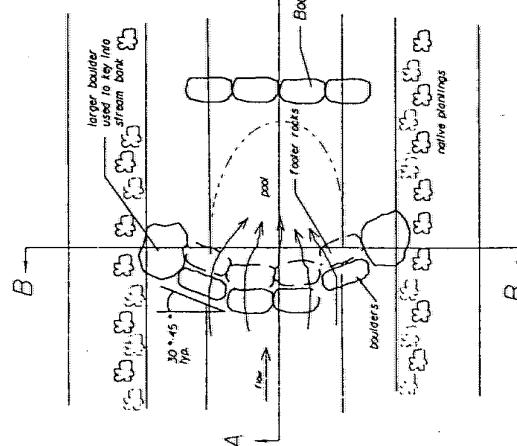
CHANNEL PLAN VIEW
WEST FORK GOOSE CREEK TRIBUTARY

31 40
SHEET 6 OF 2

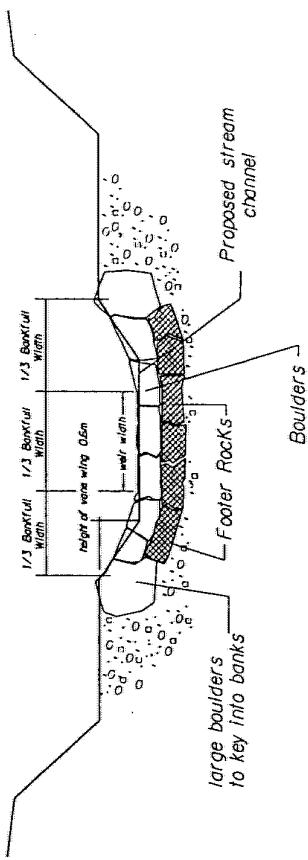
5-31-01

CROSS VANE ROCK WEIR DETAIL

PLAN VIEW



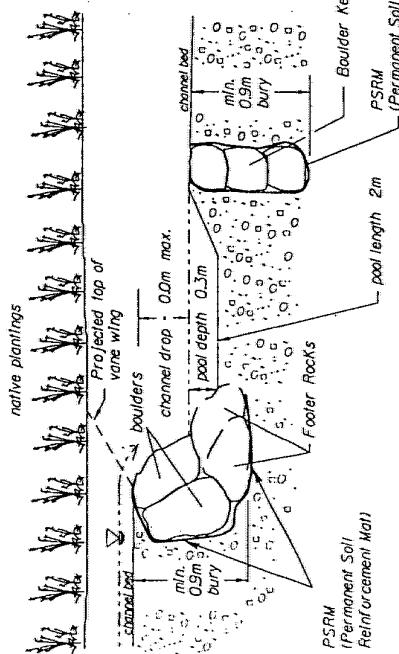
SECTION B-B



NOTE:

Footer Rocks/Boulders should be native quarried rock or locally shot rock, angular and oblong preferably with flat sides with approximate dimensions of $0.9m \times 0.6m \times 0.6m$

SECTION A-A



Larger boulders should have approximate dimensions of $1.2m \times 0.9m \times 0.9m$
Rocks should fit tightly with no spaces between

PSRM (Permanent Soil Reinforcement Mat)

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMLICO COUNTY
PROJECT: R-2539B
WEST FORK GOOSE
CREEK TRIBUTARY

-L- 136 + 90 RT
SHEET 37 OF 40
4-4-05

STREAM RELOCATION

-L- STA 136+73 RT TO 137+05 RT

S 4° 54' 03.4" E

POT Sta. 10+00.000 =
-L- Sta. 136+72.825 (15.252m RT)

PCSta. 10+12.274

PI Sta 10+17.569
 $\Delta = 66^{\circ} 59' 59.7'' (LT)$
 $\frac{L}{T} = 9.355$
 $\frac{T}{R} = 5.295$
 $R = 8.000$

PROPOSED STREAM ALIGNMENT

PI Sta 10+40.360
 $\Delta = 67^{\circ} 32' 57.5'' (RT)$
 $\frac{L}{T} = 10.611$
 $\frac{T}{R} = 6.019$
 $R = 9.000$

PT Sta. 10+44.951 =
-L- Sta. 137+04.782 (38.76m RT)

PTSta. 10+21.629
PCSta. 10+34.341

NC GRID NAD 83

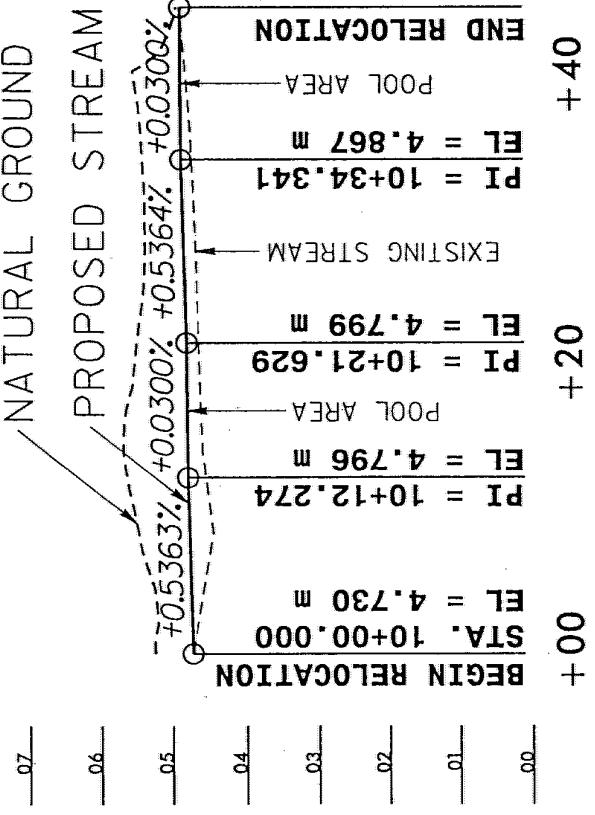
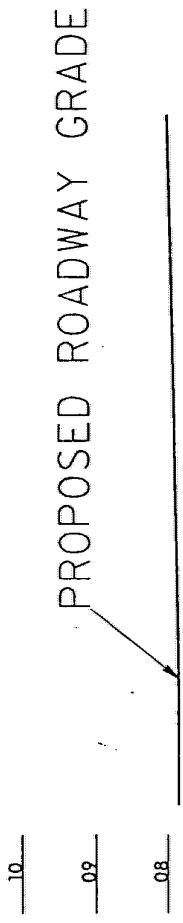
N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

PAMlico COUNTY
 PROJECT: R-2539B
 WEST FORK GOOSE
 CREEK TRIBUTARY
 -L- 136 + 90 RT

2.5 0 5
 HORIZ. SCALE = 1:500

SHEET 34 OF 40 4-4-03

-L- STA 136+73 RT TO 137+05 RT

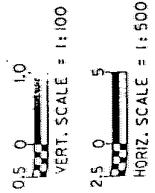


STREAM LENGTH

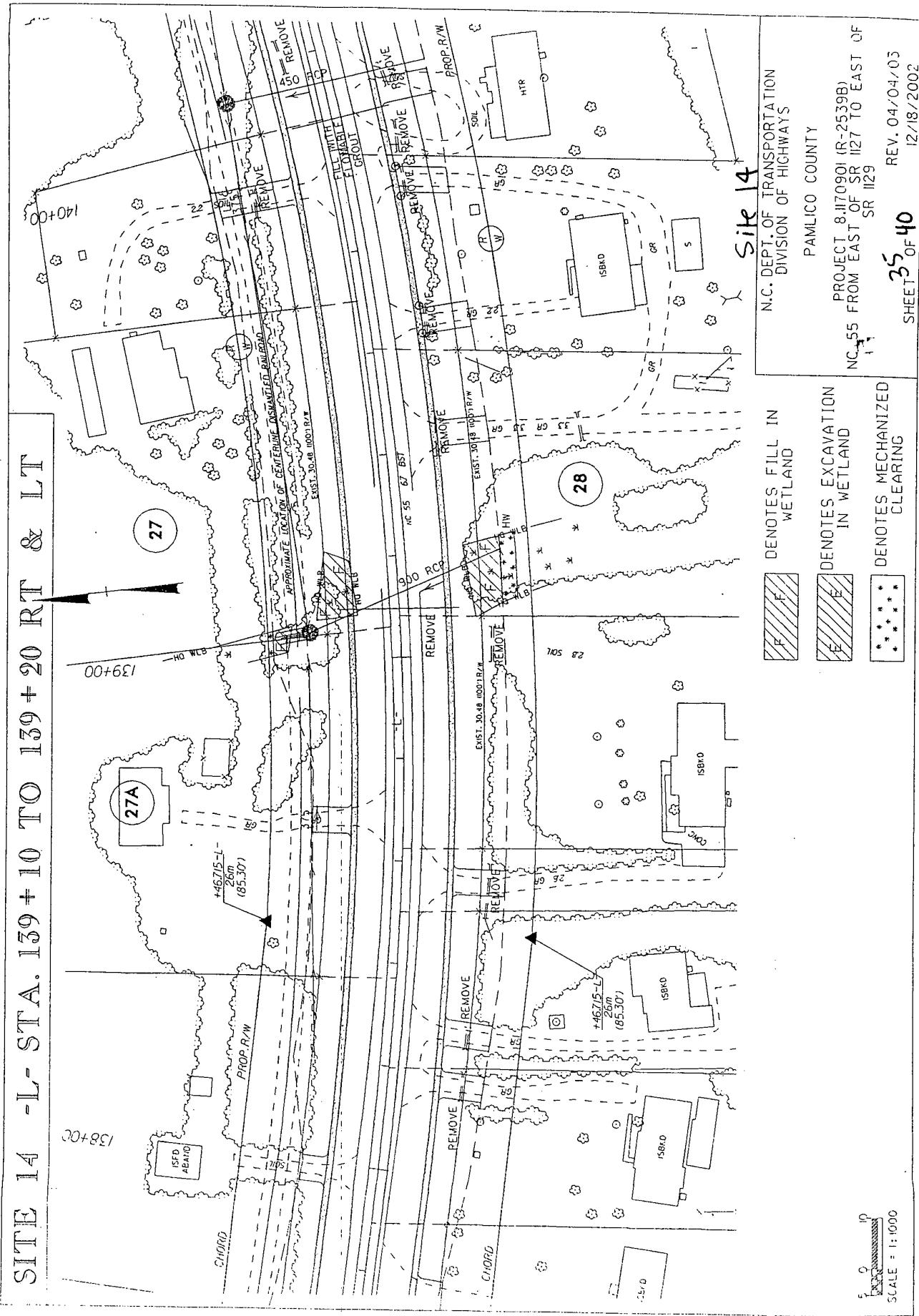
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMLICO COUNTY
PROJECT: R-2359B
WEST FORK GOOSE
CREEK TRIBUTARY
-L- 136 + 90 RT

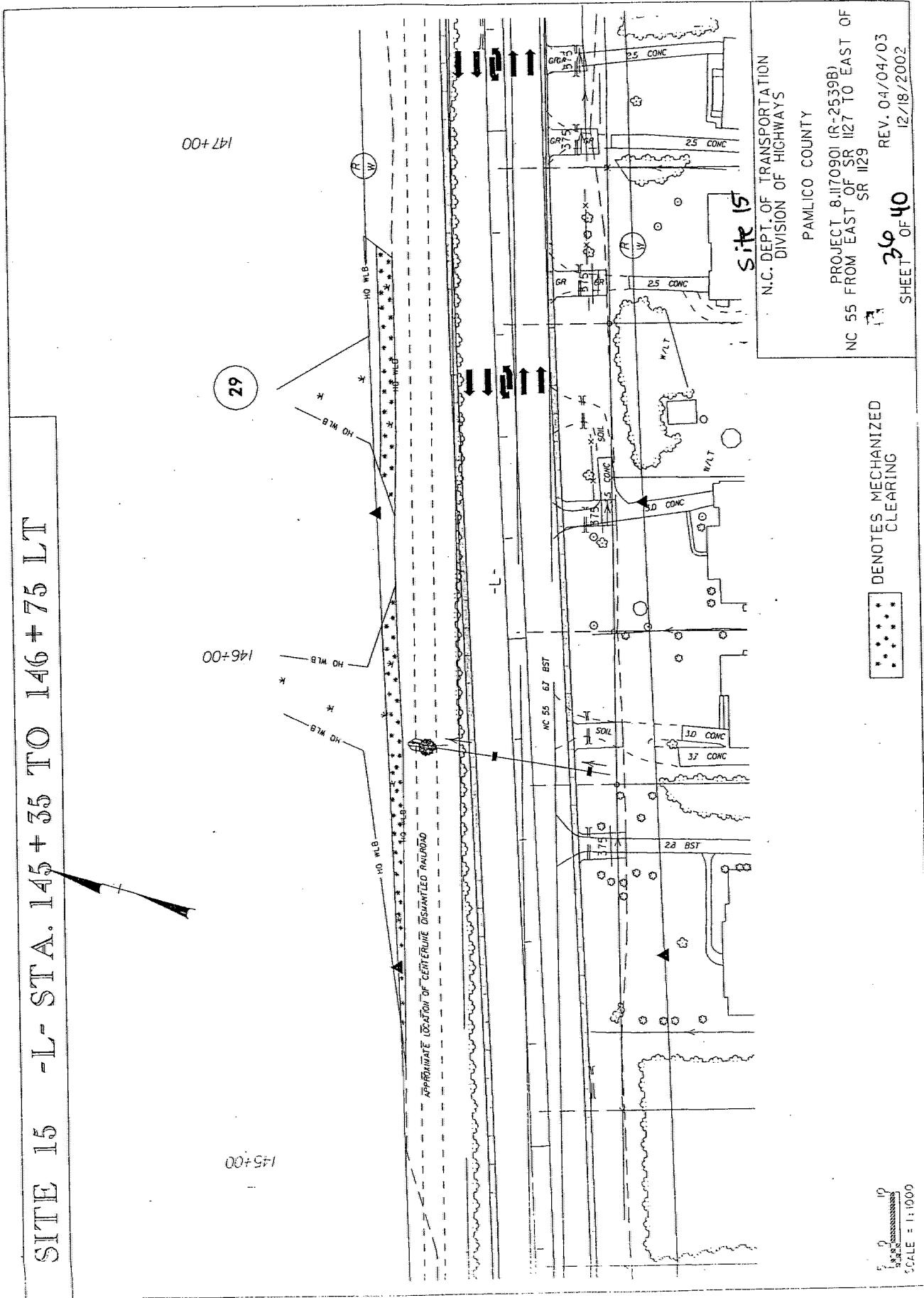
SHEET 23 OF 40
4-403



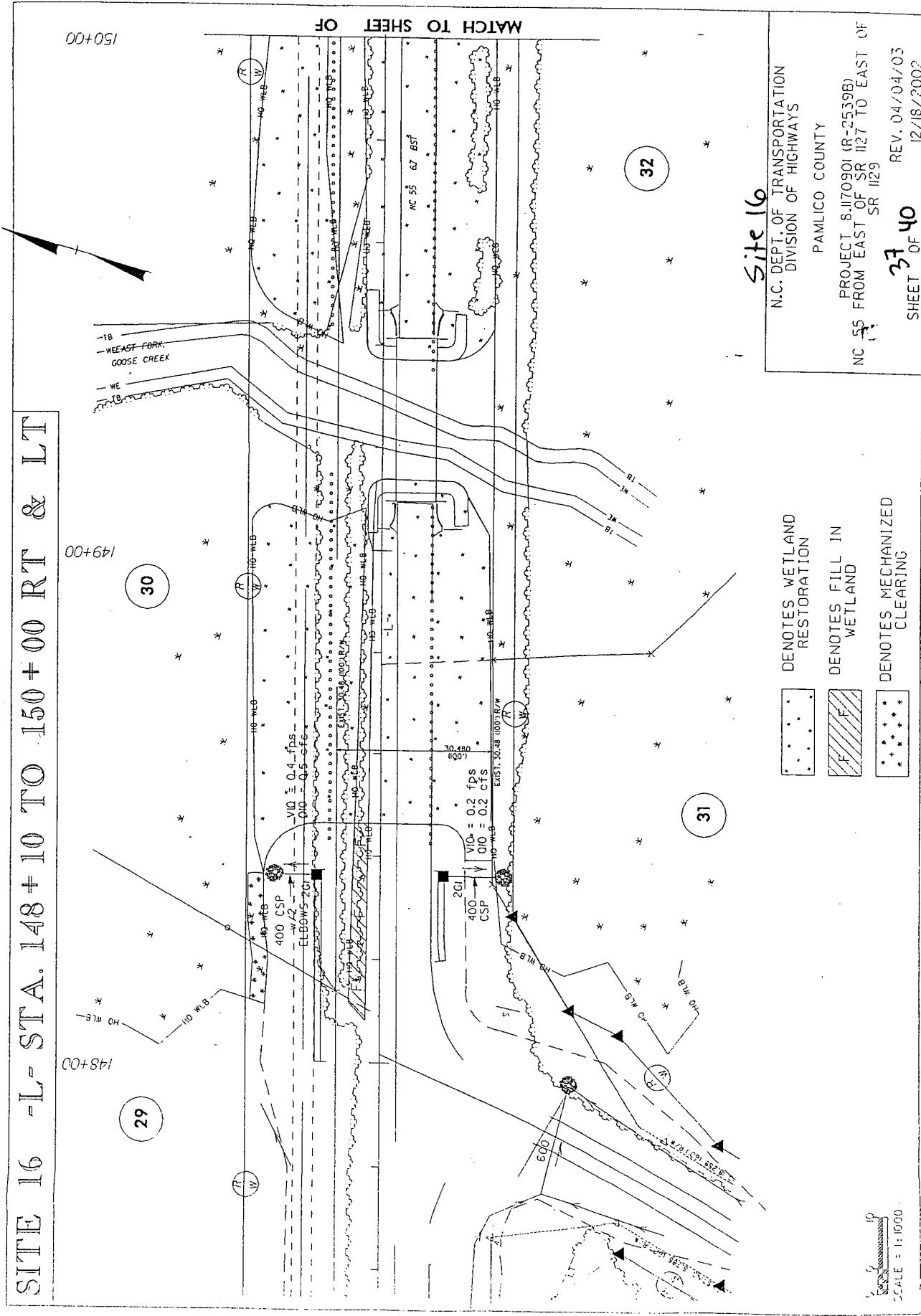
SITE 14 -L- STA. 159+10 TO 139+20 RT & LT



SITE 15 - STA. 145 + 35 TO 146 + 75 LT



SITE 16 - STA. 148 + 10 TO 150 + 00 RT & LT



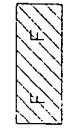
Site 16

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMLICO COUNTY

PROJECT S.1170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129

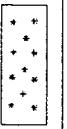
REV. 04/04/03
12/18/2002
SHEET OF 40



DENOTES WETLAND
RESTORATION



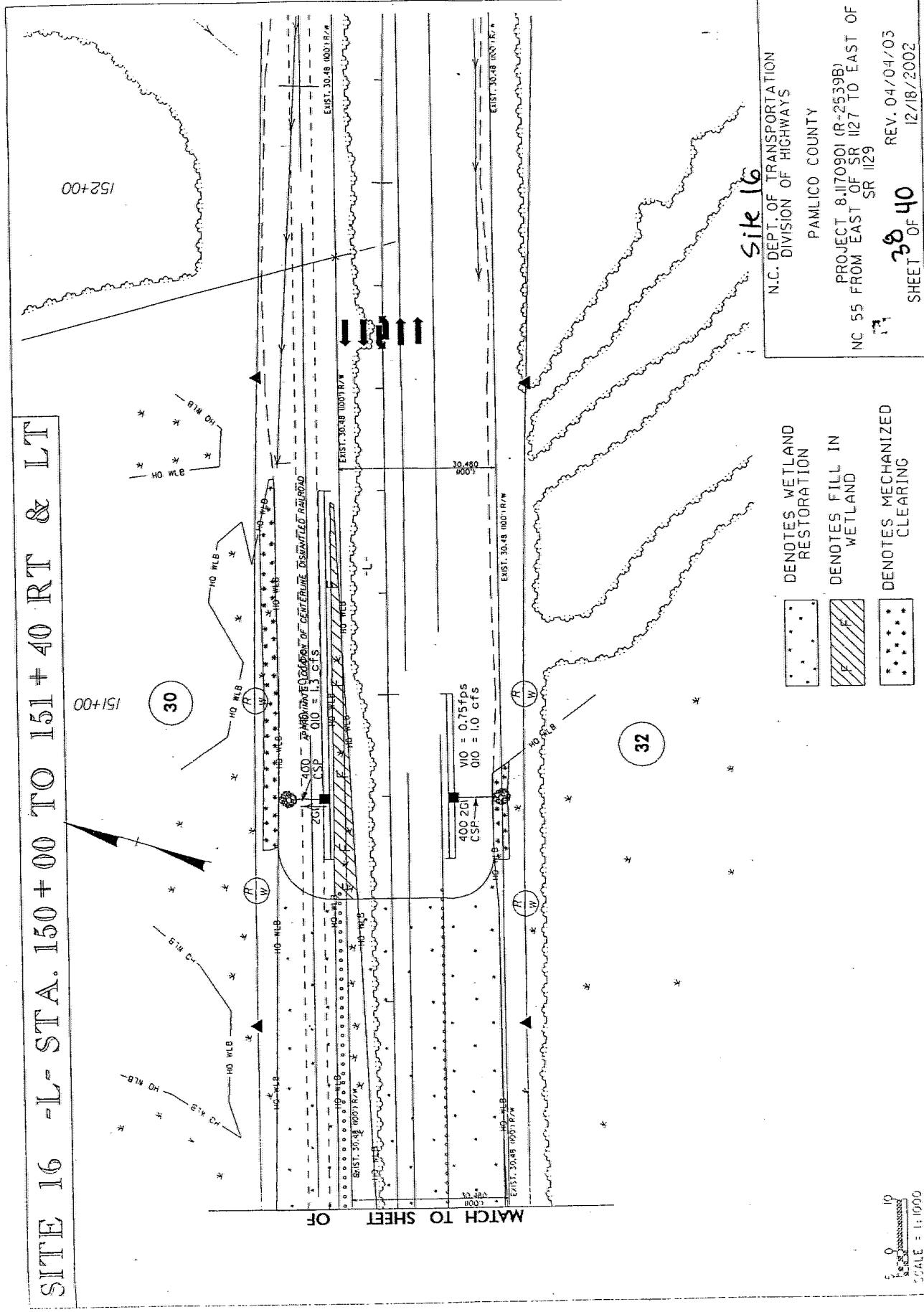
DENOTES FILL IN
WETLAND



DENOTES MECHANIZED
CLEARING

SCALE : 1:1000
10

SITE 16 - STA. 150+00 TO 151+40 RT & LT



Site 16

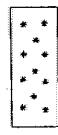
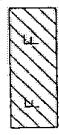
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMlico County

PROJECT 8.JJ70901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129

REV. 04/04/05
SHEET 38 OF 40
12/18/2002

Denotes Wetland
Restoration



SCALE = 1:1000

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS			SURFACE WATER IMPACTS					
			Fill In Wetlands (ha)	Temp. Fill In Wetlands (ha)	Excavation In Wetlands (ha)	Mechanized Clearing (Method III) (ha)	Fill In SW (Natural) (ha)	Fill In SW (Pond) (ha)	Temp. Fill In SW (ha)	Existing Channel Impacted (m)	Natural Stream Design (m)
1 *	56+30 TO 56+55				0.034	0.008					
2	59+70 TO 61+00	EXTENSION OF 2@ 1650 RCP w/COLLARS	0.051		0.012	0.019	0.004			22	
3	62+25 TO 63+60		0.055			0.010					
*4	74+85 TO 77+40	BRIDGE; 5 SPAN (5@ 20m) = 100m 1143mm PRESTRESSED CONCRETE GIRDERS	0.136	0.003	0.004	0.057					
5	81+85 TO 82+00	EXTENSION OF 1050 RCP w/COLLARS	0.012			0.005	0.001			16	
6	102+35 TO 103+65		0.047			0.038					
7	103+50 TO 114+00	EXTENSION OF 1.8 x 1.2 & 1.2 x 1.2 RCBC (TWO CELLS)	0.286			0.178	0.003			16	
8	117+20 TO 118+60		0.008			0.038					
9	119+20 TO 120+20		0.020			0.023					
10	121+70 TO 122+20		0.045			0.013					
11	123+75 TO 125+60		0.021			0.017					
13	134+75 TO 137+30	EXTENSION OF 1.8 x 1.2 RCBC	0.027	0.048	0.132	0.006			36	41	
14	139+10 TO 139+20		0.017	0.002	0.004						
15	145+35 TO 146+75		0.000			0.035					
*16	148+10 TO 151+40	BRIDGE; 17 SPAN (6@ 13m, 10@ 15m, 10@ 13m) = 223m 533mm CORED SLAB	0.030			0.034					
TOTALS:			0.754	0.003	0.100	0.610	0.014	0.000	0.000	90	41
* Site 1 - Orange impacts total 0.06 acres.											
** SITE NO. 4 - EXISTING ROAD REMOVED, RECLAIMED WETLAND = 0.234 (ha)											
*** SITE NO. 16 - EXISTING ROAD AND RAILROAD EMBANKMENT REMOVED, RECLAIMED WETLAND = 0.754 (ha)											

Form Revised 3/22/01

PROJECT 8.1170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF SR 1129
39 340
SHEET OF 06/23/03

PAMILCO COUNTY
NC. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WETLAND PERMIT IMPACT SUMMARY

WETLAND IMPACTS

Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method II) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
*1	56+30 TO 56+55	EXTENSION OF 2@ 1650 RGP w/ COLLARS			0.08	0.02					
2	59+70 TO 61+00		0.13		0.03	0.05	0.01			72.2	
3	62+25 TO 63+60	EXTENSION OF 1.8 x 1.2 & 1.2 x 1.2 RCBC (TWO CELLS)	0.14			0.02					
**4	74+85 TO 77+40	EXTENSION OF 1650 BRCP w/ COLLARS	0.34	0.01	0.01	0.14					
5	81+85 TO 82+00		0.03				0.01	0.00			52.5
6	102+35 TO 103+65	EXTENSION OF 1.8 x 1.2 & 1.2 x 1.2 RCBC (TWO CELLS)	0.12			0.09					
7	108+50 TO 114+00		0.71				0.44	0.01			52.5
8	117+20 TO 118+60		0.02				0.09				
9	119+20 TO 120+20		0.05				0.06				
10	121+70 TO 122+20		0.11				0.03				
11	123+75 TO 125+60		0.05			0.04					
13	134+75 TO 137+30	EXTENSION OF 1.8 x 1.2 RCBC	0.07		0.12	0.33	0.01			118.1	134.5
14	139+10 TO 139+20		0.04		0.00	0.01					
15	145+35 TO 146+75	15m, 10 @ 13m = 223m 535mm CORED SLAB	0.07			0.09					
***16	148+10 TO 151+40					0.08					
TOTALS			1.87	0.01	0.25	1.51	0.03	0.00	296.20	134.48	

* SITE NO. 1 - DRAINAGE IMPACTS TOTAL 0.08 ACRES OF NON-RIVERINE WETLAND

** SITE NO. 4 - EXISTING ROAD REMOVED, RECLAIMED WETLAND = 0.58 (ac)

*** SITE NO. 16 - EXISTING ROAD AND RAILROAD EMBANKMENT REMOVED, RECLAIMED WETLAND = 1.87 (ac)

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYSPROJECT 8.1170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF SR 1129

SHEET OF

R-2539B
Utility Relocations

Power

CP&L – Power poles located outside of the existing and/or proposed Rights of Way (R/W) will largely remain in place. Poles inside the new R/W will be relocated to 0.3 meters (1 foot) outside the new R/W line. At the staged construction of the bridges over Deep Run Creek and East Fork, Goose Creek, the power will temporarily relocate to the north side of NC 55 during construction of the southern portion of the structures. The power will return to the current alignment after construction.

No increase in capacity is expected at this time.

Tideland EMC – Tideland EMC does not have any facilities in conflict with proposed construction in any of the environmentally sensitive areas. Poles will be relocated out of the clear zone or outside the right of way.

No increase in capacity is expected at this time.

Telephone

There are copper and fiber optic telephone lines in the shoulders of the existing roadway. These facilities are expected to relocate to the proposed shoulder or to the edge of the proposed cut or fill slopes. Wetlands and buffer zones will be directionally bored with conduit to avoid surface disruptions.

No increase in capacity is expected at this time.

Water

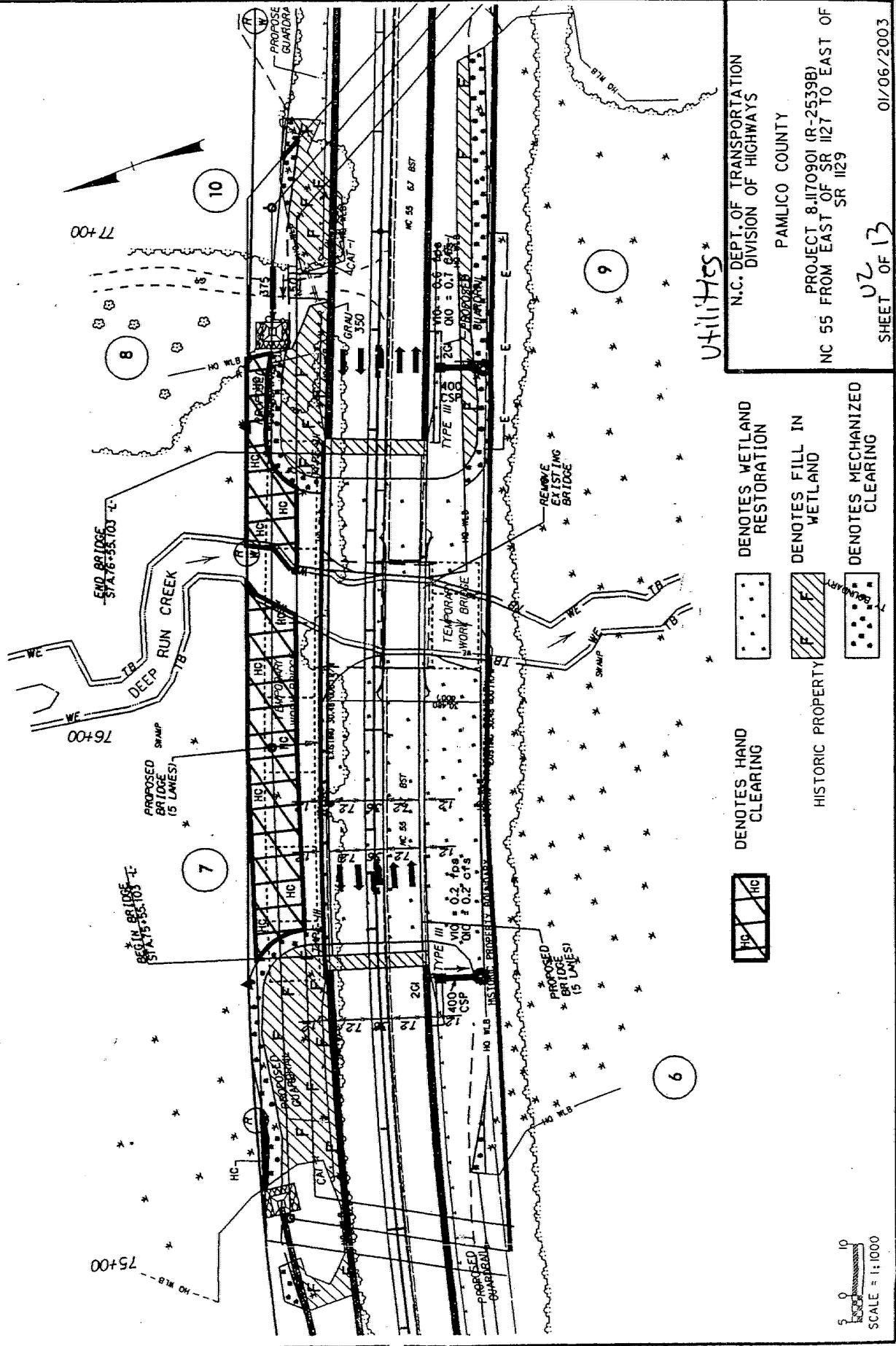
There is an eight in water main the length of the project. The water main will be relocated within the permitted footprint of the roadway work. Stream and wetland crossings will be directionally bored to avoid surface disruptions.

No increase in capacity is expected at this time.

Sewer

There is an existing sewer from Bennett Tingle Road to the end of the project. This design was coordinated with NCDOT and should not require relocation. If the sewer requires replacement, it will be replaced within the footprint of the roadway project. No increase in capacity is expected at this time.

SITE 4 -L- STA. 74 + 85 TO 77 + 40 RT & LT

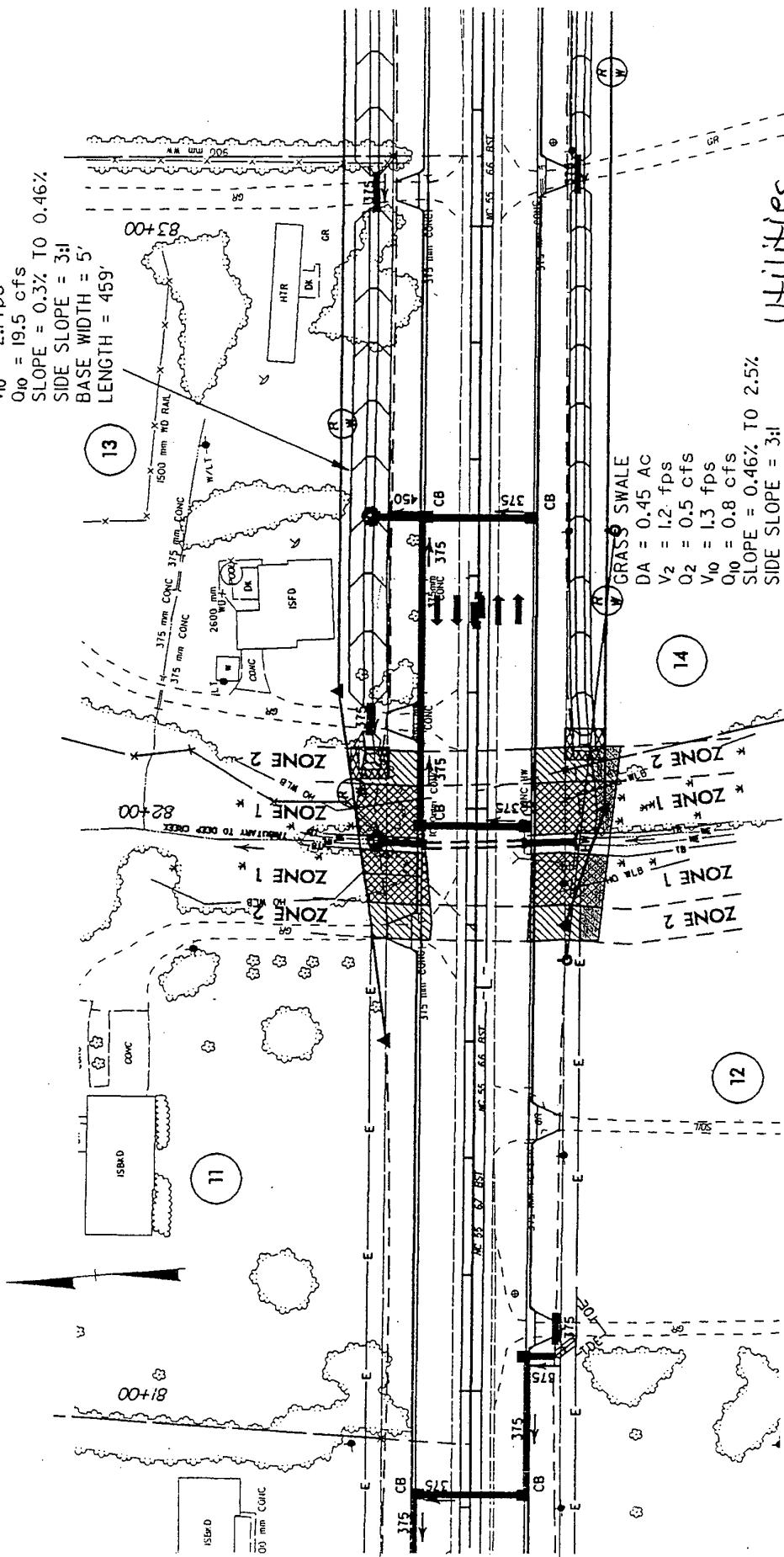


SITE 5 -L- STA. 81+85 TO 82+00 RT & LT

GRASS SWALE
DA = 3.05 AC
V₂ = 1.7 fps
Q₂ = 8.8 cfs
V_{lo} = 2.1 fps

Q_{lo} = 19.5 cfs
SLOPE = 0.3% TO 0.46%
SIDE SLOPE = 3:1
BASE WIDTH = 5'
LENGTH = 459'

(13)



GRASS SWALE
DA = 0.45 AC
V₂ = 1.2 fps
Q₂ = 0.5 cfs
V_{lo} = 1.3 fps
Q_{lo} = 0.8 cfs
SLOPE = 0.46% TO 2.5%
SIDE SLOPE = 3:1
BASE WIDTH = 5'
LENGTH = 682'

(14)

GRASS SWALE
DA = 0.45 AC
V₂ = 1.2 fps
Q₂ = 0.5 cfs
V_{lo} = 1.3 fps
Q_{lo} = 0.8 cfs
SLOPE = 0.3% TO 0.46%
SIDE SLOPE = 3:1
BASE WIDTH = 5'
LENGTH = 459'

(13)

(12)

(11)

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 8.JI7090I (R-2539B)
NC 55 FROM EAST OF SR II27 TO EAST OF
SR II29

U₂
OF
13

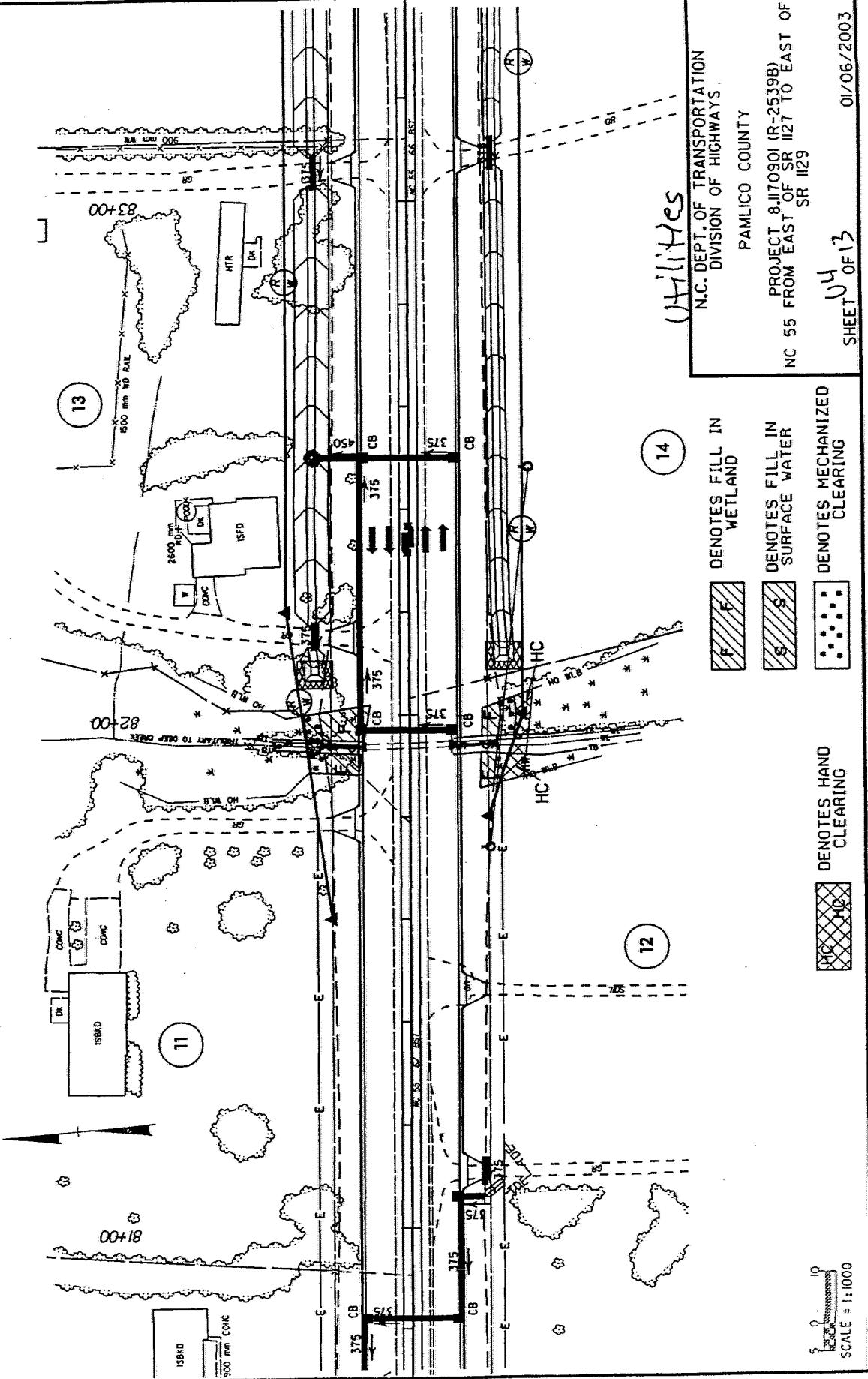
1/6/2003

0
5
10
SCALE = 1:10000

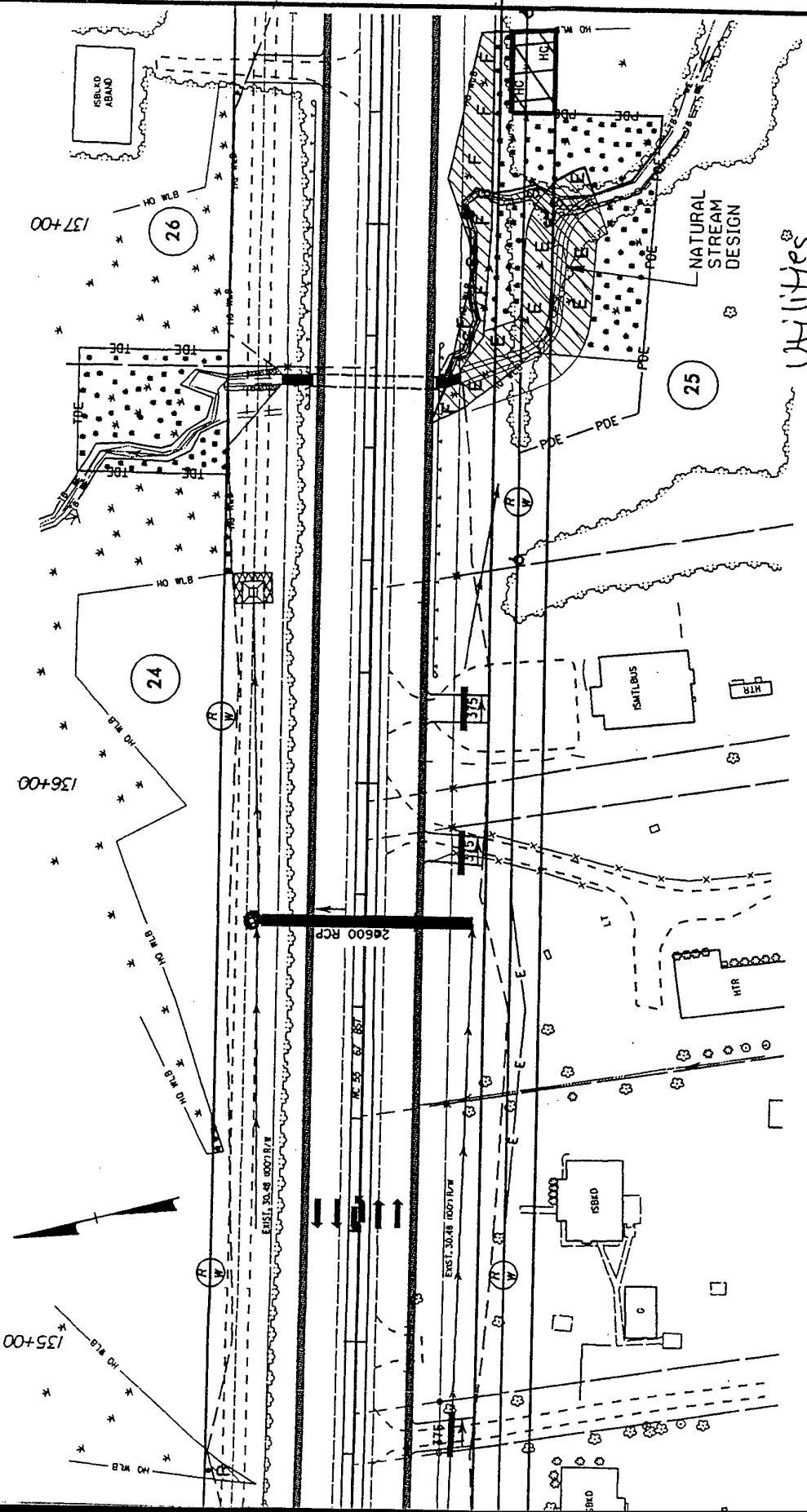
PERMANENT IMPACT ZONE 1

PERMANENT IMPACT ZONE 2

SITE 5 -L- STA. 81+85 TO 82+00 RT & LT



SITE 13 -L- STA. 134+75 TO 137+30 RT & LT

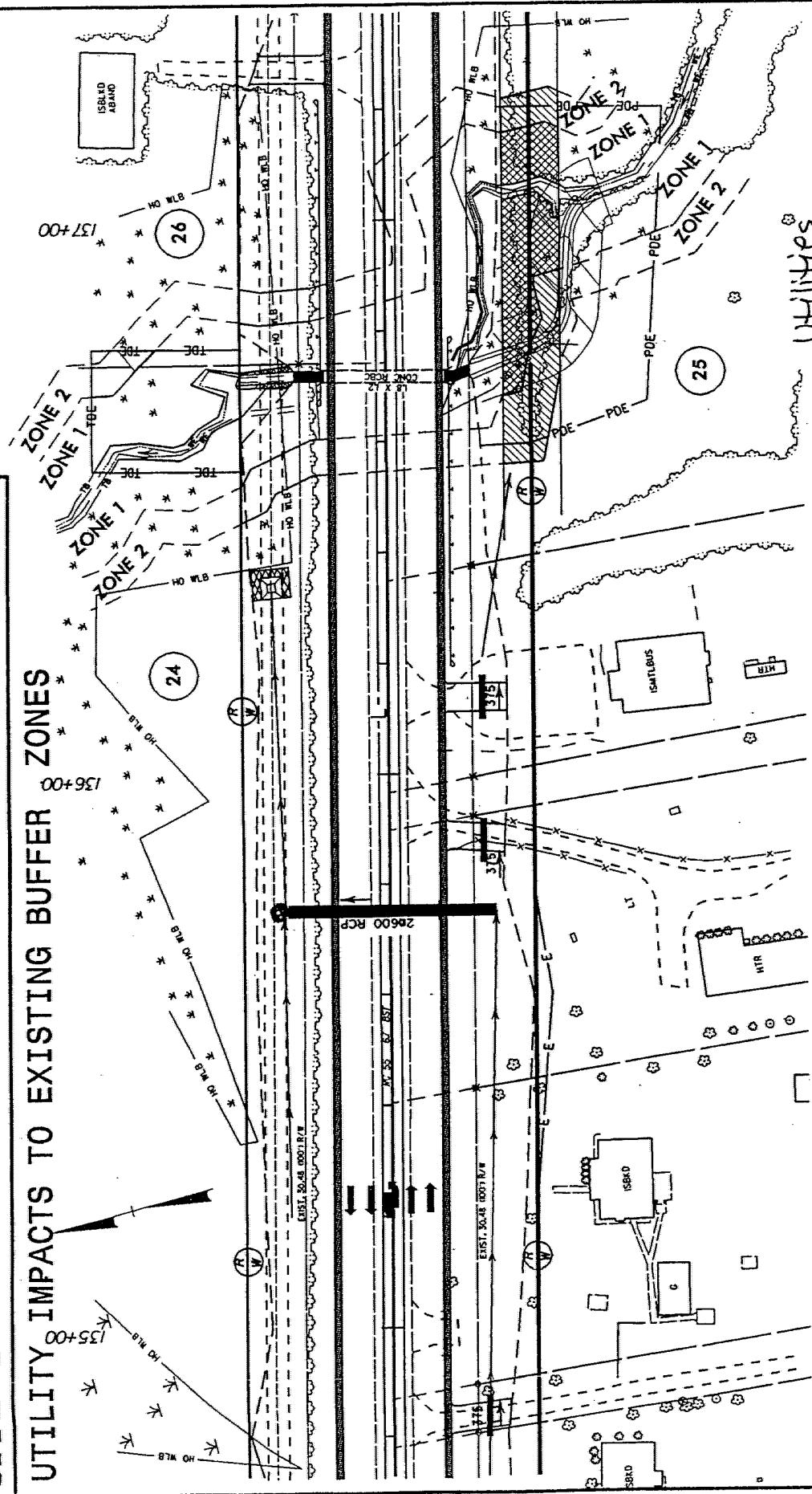


N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 8-170001 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129
SHEET OF 13

01/06/2003

SITE 13 -L- STA. 134+75 TO 137+30 RT & LT

UTILITY IMPACTS TO EXISTING BUFFER ZONES

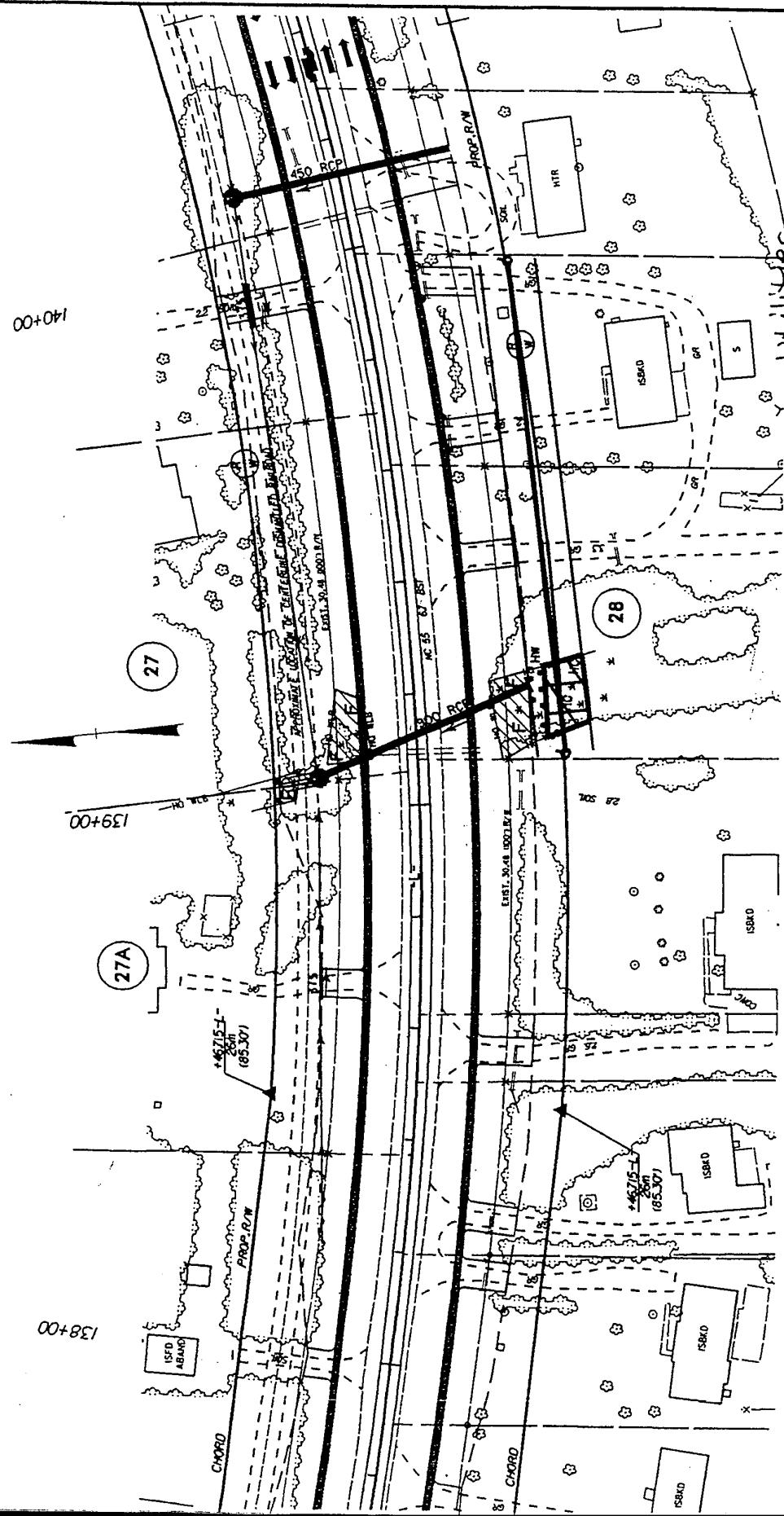


N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 8J170901 (R-2539B)
NC 55 FROM EAST OF SR 127 TO EAST OF
SR 129

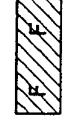
1/6/2003
SHEET 13

SCALE = 1:1000

SITE 14 -L- STA. 139+10 TO 139+20 RT & LT



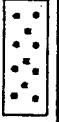
DENOTES HAND-CLEARING IN WETLAND



DENOTES EXCAVATION IN WETLAND



DENOTES MECHANIZED CLEARING



N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

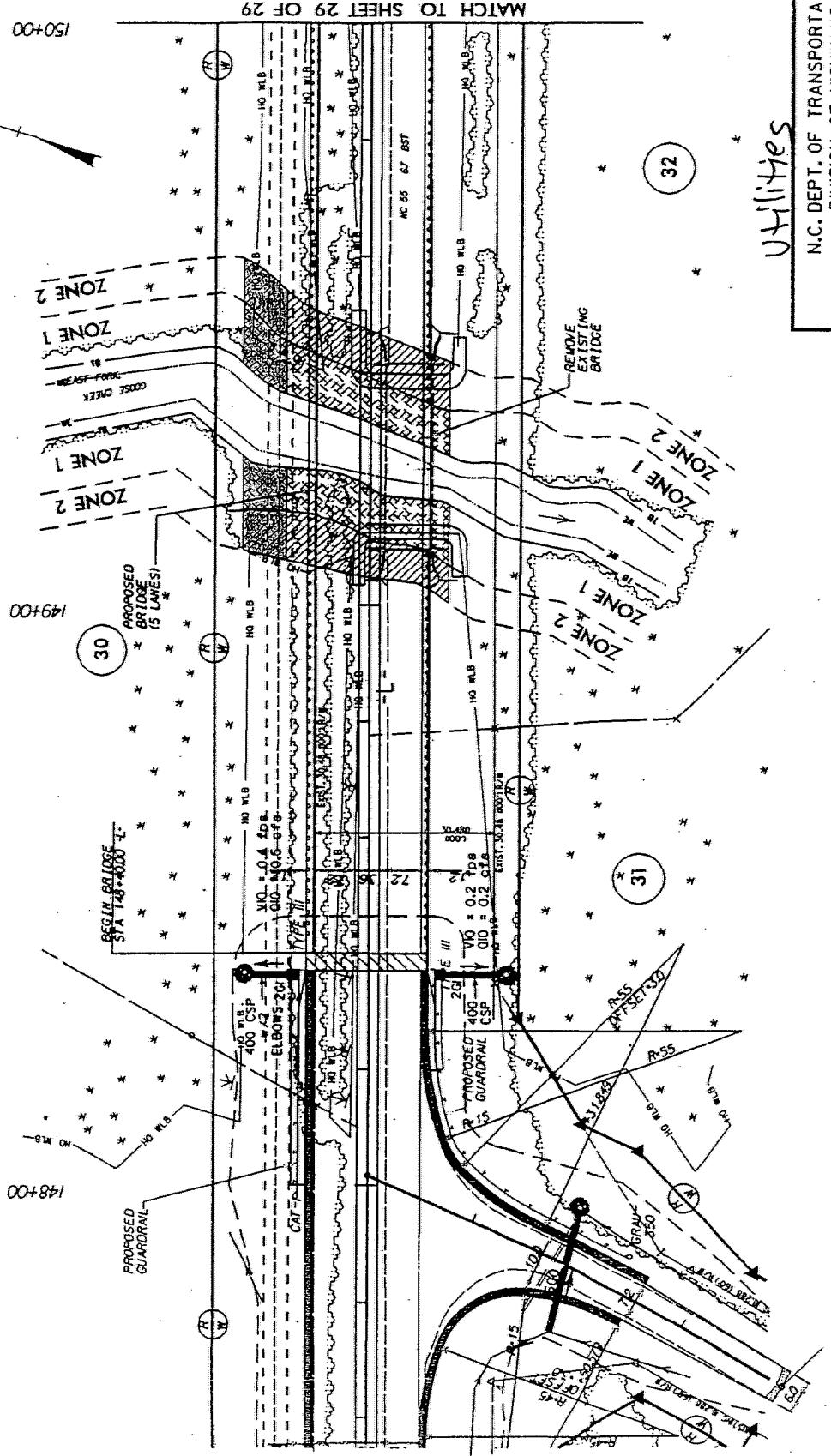
PAMlico COUNTY

PROJECT #117090 (R#2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129

JULY 1 2003
SHEET 13

SCALE = 1:10000

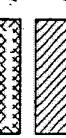
SITE 16 - L- STA. 148 + 10 TO 151 + 40 RT & LT



MATCH TO SHEET 29 OF 29
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 8.II70901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129

UTILITIES
SHEET OF 3

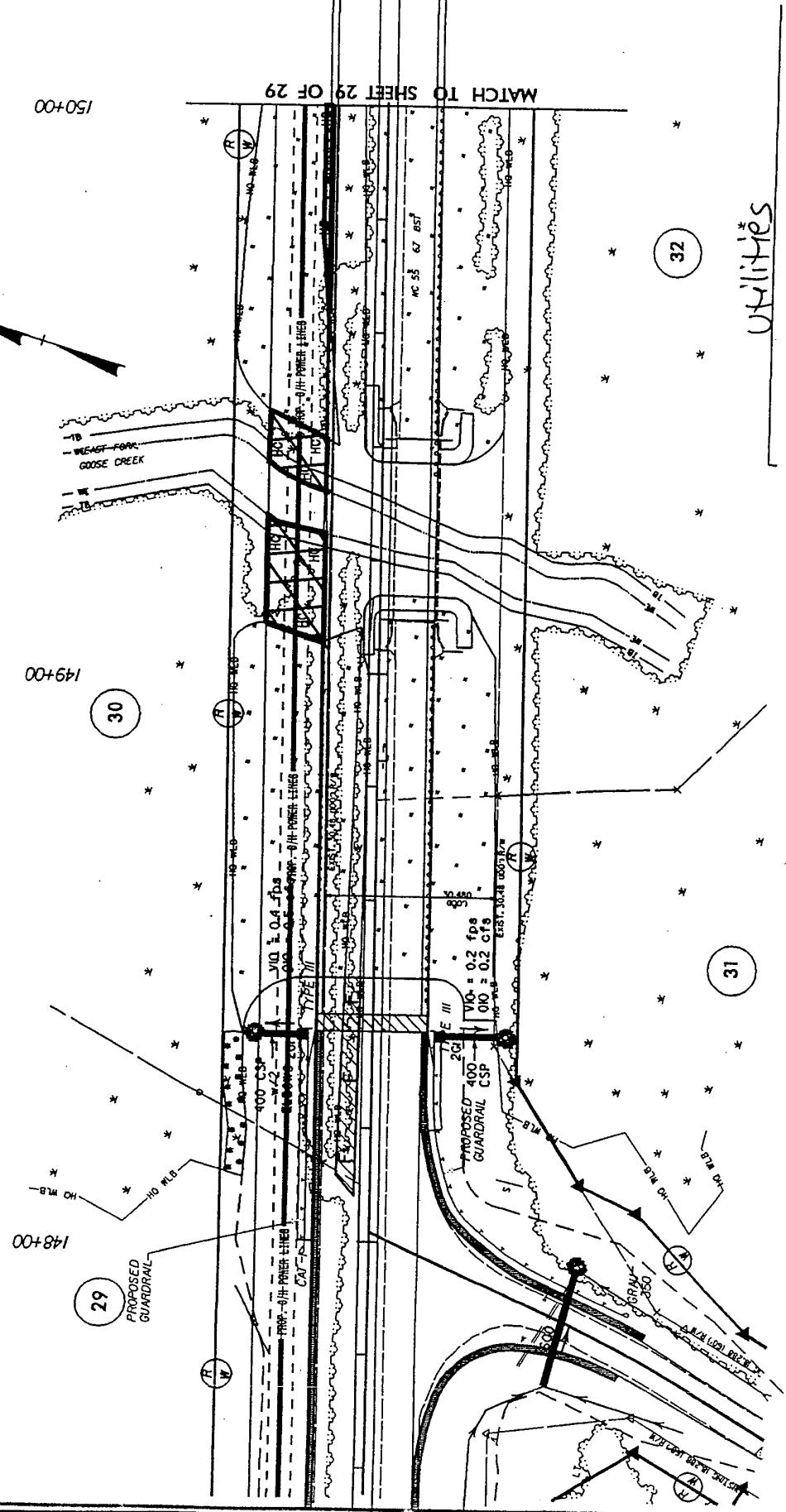
SCALE 1:10000



ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2

1/6/2003

SITE 16 -L- STA. 148 + 10 TO 151 + 40 RT & LT

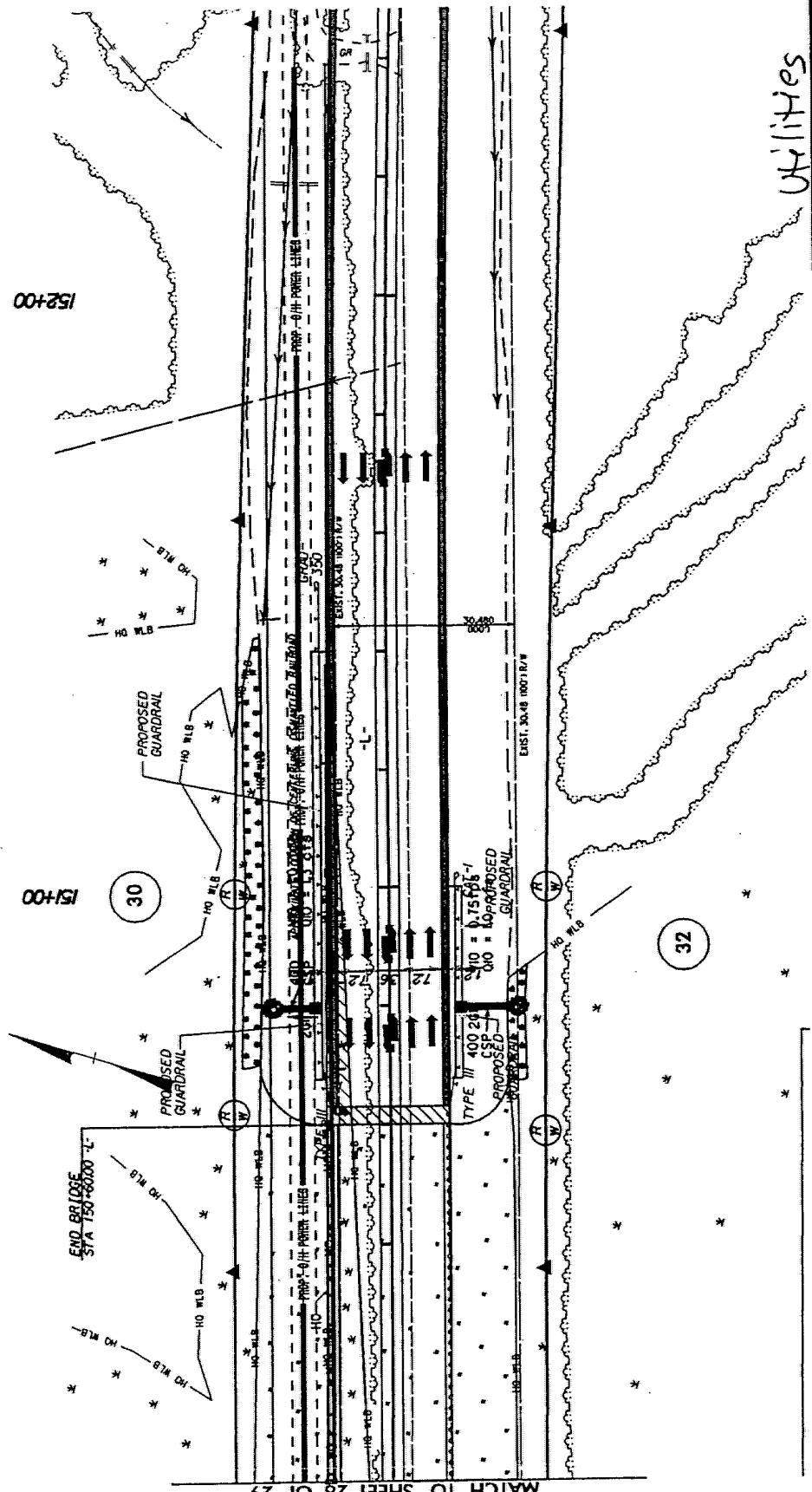


N.C. DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS PAMlico COUNTY	PROJECT #J170901 (R-2539B)
NC 55 FROM EAST OF SR II27 TO EAST OF SR II29	Sheet 13 1/6/2003

HC / HC	DENOTES HAND-CLEARING IN WETLAND
... .	DENOTES WETLAND RESTORATION
F / F	DENOTES FILL IN WETLAND
• •	DENOTES MECHANIZED CLEARING

SCALE = 1:1000

SITE 16 -L- STA. 148+10 TO 151+40 RT & LT



UTILITIES

N.C. DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS
PAMLICO COUNTY
PROJECT 8.II70901 (R-2539B)
NC 55 FROM EAST SR II29
Sheet 10 of 13
1/6/2003

- [Symbol: Dots] DENOTES HAND-CLEARING IN WETLAND
- [Symbol: Dots with diagonal lines] DENOTES WETLAND RESTORATION
- [Symbol: F] DENOTES FILL IN WETLAND
- [Symbol: Dots] DENOTES MECHANIZED CLEARING

0 5 10
SCALE = 1:10000

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS			SURFACE WATER IMPACTS					
			Fill In Wetlands (ha)	Temp. Fill In Wetlands (ha)	Excavation In Wetlands (ha)	Mechanized Clearing (Utilities) (ha)	Fill In SW (Natural) (ha)	Fill In SW (Pond) (ha)	Temp. Fill In SW (ha)	Existing Channel Impacted (m)	Natural Stream Design (m)
1	56+30 TO 56+55	EXTENSION OF 2@ 1650 RCP w/COLLARS	0.051	0.012	0.034	0.008	0.019	0.004		22	
2	59+70 TO 61+00		0.055			0.010					
3	62+25 TO 63+60		0.055			0.010					
*4	74+85 TO 77+40	BRIDGE; 5 SPAN (5@ 20m) = 100m 1143mm PRESTRESSED CONCRETE GIRDERS	0.136	0.003		0.094	0.061				
5	81+85 TO 82+00	EXTENSION OF 1050 RCP w/COLLARS	0.012			0.005	0.005	0.001		16	
6	102+35 TO 103+65		0.047			0.038					
7	108+50 TO 114+00	EXTENSION OF 1.8x1.2 & 1.2x1.2 RCBC (TWO CELLS)	0.286			0.178	0.003			16	
8	117+20 TO 118+60		0.008			0.038					
9	119+20 TO 120+20		0.020			0.023					
10	121+70 TO 122+20		0.045			0.013					
11	123+75 TO 125+60		0.021			0.017					
13	134+75 TO 137+30	EXTENSION OF 1.8 x 1.2 RCBC	0.027	0.048	0.012	0.132	0.006			36	41
14	139+10 TO 139+20		0.017	0.002	0.009	0.004					
15	145+35 TO 146+75		0.000			0.035					
**16	148+10 TO 151+40	BRIDGE; 17 SPAN (6@ 13m, 1@ 15m, 10@ 13m) = 223m 533mm CORED SLAB	0.030		0.038	0.034					
TOTALS:			0.754	0.003	0.095	0.138	0.614	0.014	0.000	90	41

* SITE NO. 4 - EXISTING ROAD REMOVED, RECLAIMED WETLAND = 0.234 (ha)

** SITE NO. 16 - EXISTING ROAD AND RAILROAD EMBANKMENT REMOVED; RECLAIMED WETLAND = 0.754 (ha)

Utilities

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMlico County

PROJECT #1170801 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF SR 1129

\\ \\ B
SHEET OF 16/03

BUFFER IMPACTS SUMMARY (UTILITIES ONLY)

SITE NO.	STRUCTURE SIZE / TYPE	STATION / (FROM TO)	TYPE	IMPACT			MITIGABLE			BUFFER REPLACEMENT		
				ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ac)	ZONE 2 (ac)	TOTAL (ac)	ZONE 1 (ac)	ZONE 2 (ac)	TOTAL (ac)	
2	EXTENSION OF 2@ 1650 RCP	-L- Sta 59+70 TO 61+00	X			0.00	0.00	0.00				
4	BRIDGE, 5 SPAN (5@ 20m) = 100m 1143mm PRESTRESSED CONCRETE GIRDERS	-L- Sta 74+85 TO 77+40	X			0.00	0.00	0.00				
5	EXTENSION OF 1050 RCP WICOLLAR	-L- Sta 81+85 TO 82+00	X			0.02	0.01	0.03				
7	EXTENSION OF 1.8 x 1.2 & 1.2 x 1.2 RCBC (TWO CELLS)	-L- Sta 108+50 TO 114+00	X			0.00	0.00	0.00				
13	EXTENSION OF 1.8 x 1.2 RCBC	-L- Sta 134+75 TO 137+30	X			0.09	0.07	0.15				
16	BRIDGE, 17 SPAN (6@ 13m, 1@ 15m, 10@ 13m) 533mm CORED SLAB	-L- Sta 148+10 TO 151+40	X			0.08	0.06	0.14				
TOTAL:						0.18	0.14	0.32		0.00	0.00	0.00

Utilities N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMILCO COUNTY
PROJECT: 8-1170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF SR 1129

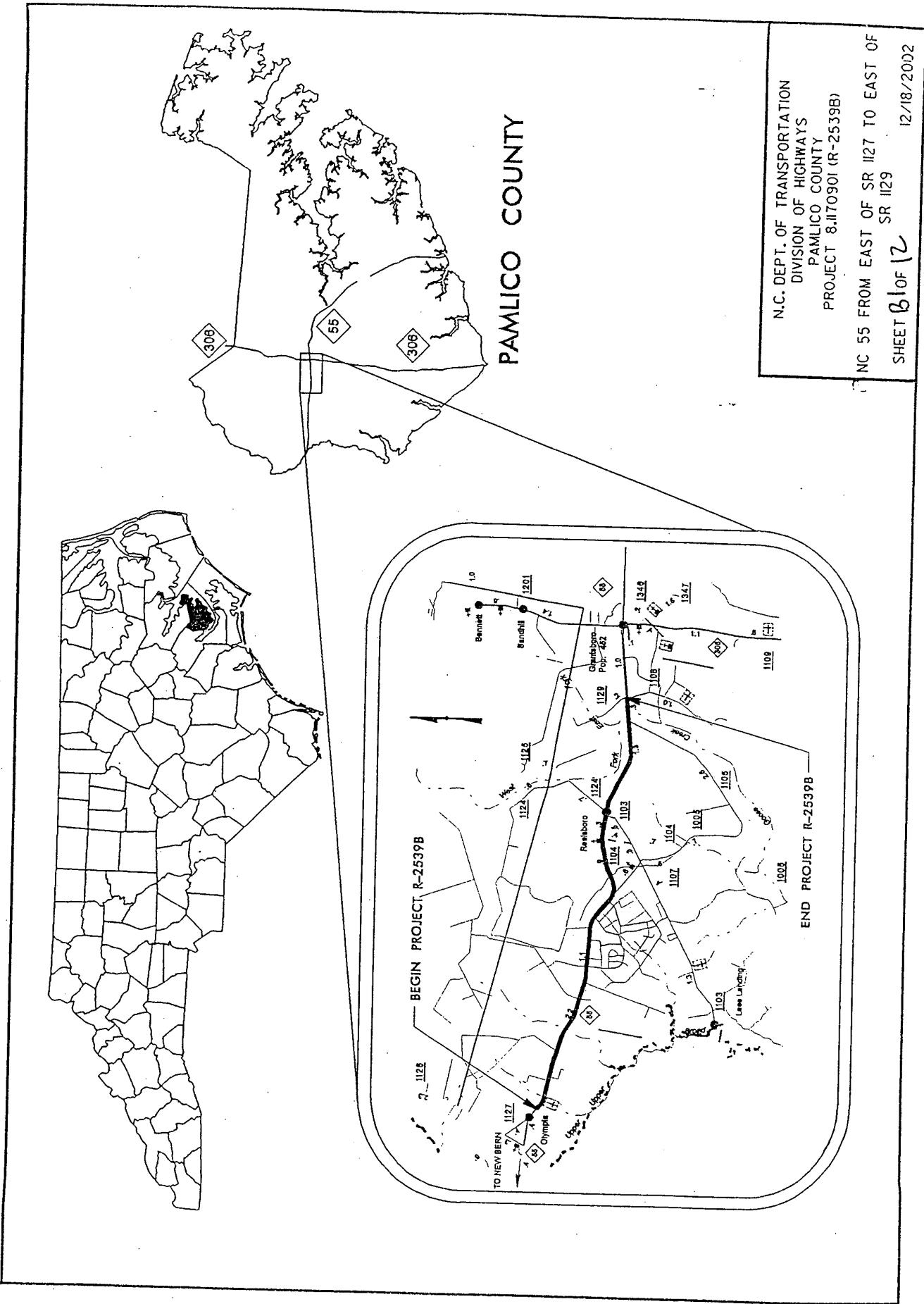
12/18/2002 SHEET OF 13
UV

BUFFER IMPACTS SUMMARY (UTILITIES ONLY)

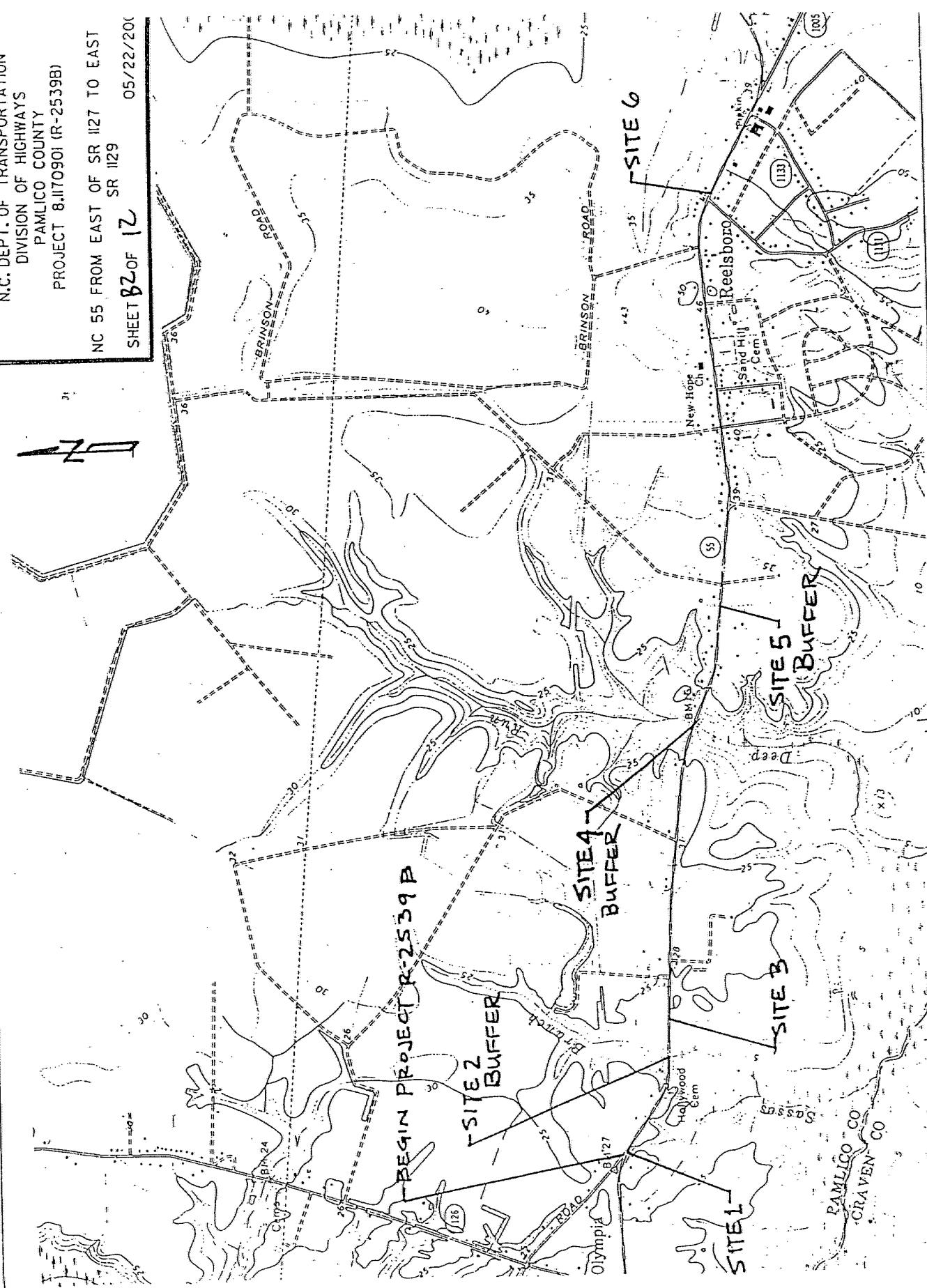
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/T0)	TYPE	IMPACT			MITIGABLE			BUFFER REPLACEMENT		
				ROAD CROSSING	PARALLEL IMPACT	ALLOWABLE (m²)	ZONE 1 (m²)	ZONE 2 (m²)	TOTAL (m²)	ZONE 1 (m²)	ZONE 2 (m²)	TOTAL (m²)
2	EXTENSION OF 2@ 1650 RCP	-L- Sta 59+70 TO 61+00.	X			0.0						
4	BRIDGE, 5 SPAN (5@ 20m) = 100m 1143mm PRESTRESSED CONCRETE GIRDERS	-L- Sta 74+85 TO 77+40	X			0.0						
5	EXTENSION OF 1050 RCP W/ COLLAR	-L- Sta 81+85 TO 82+00	X			60.7	46.5	107.2				
7	EXTENSION OF 1.8 x 1.2 & 1.2 x 1.2 RCB C (TWO CELLS)	-L- Sta 108+50 TO 114+00	X			0.0						
13	EXTENSION OF 1.8 x 1.2 RCB C	-L- Sta 134+75 TO 137+30	X			344.0	288.5	612.5				
16	BRIDGE, 17 SPAN (6@13m, 1@15m, 10@13m) 533mm CORED SLAB	-L- Sta 148+10 TO 151+40	X			319.0	244.7	563.7				
TOTAL:										723.7	559.7	1283.4
Note: buffer impacts are for utilities only and are not part of the Road Crossing impacts.												
UTILITIES N.C. DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS PAMlico COUNTY PROJECT: 8.1170901 (R-2539B) NC 55 FROM EAST OF SR 1127 TO EAST OF SR 1129 1/6/03 SHEET OF 13												

U13

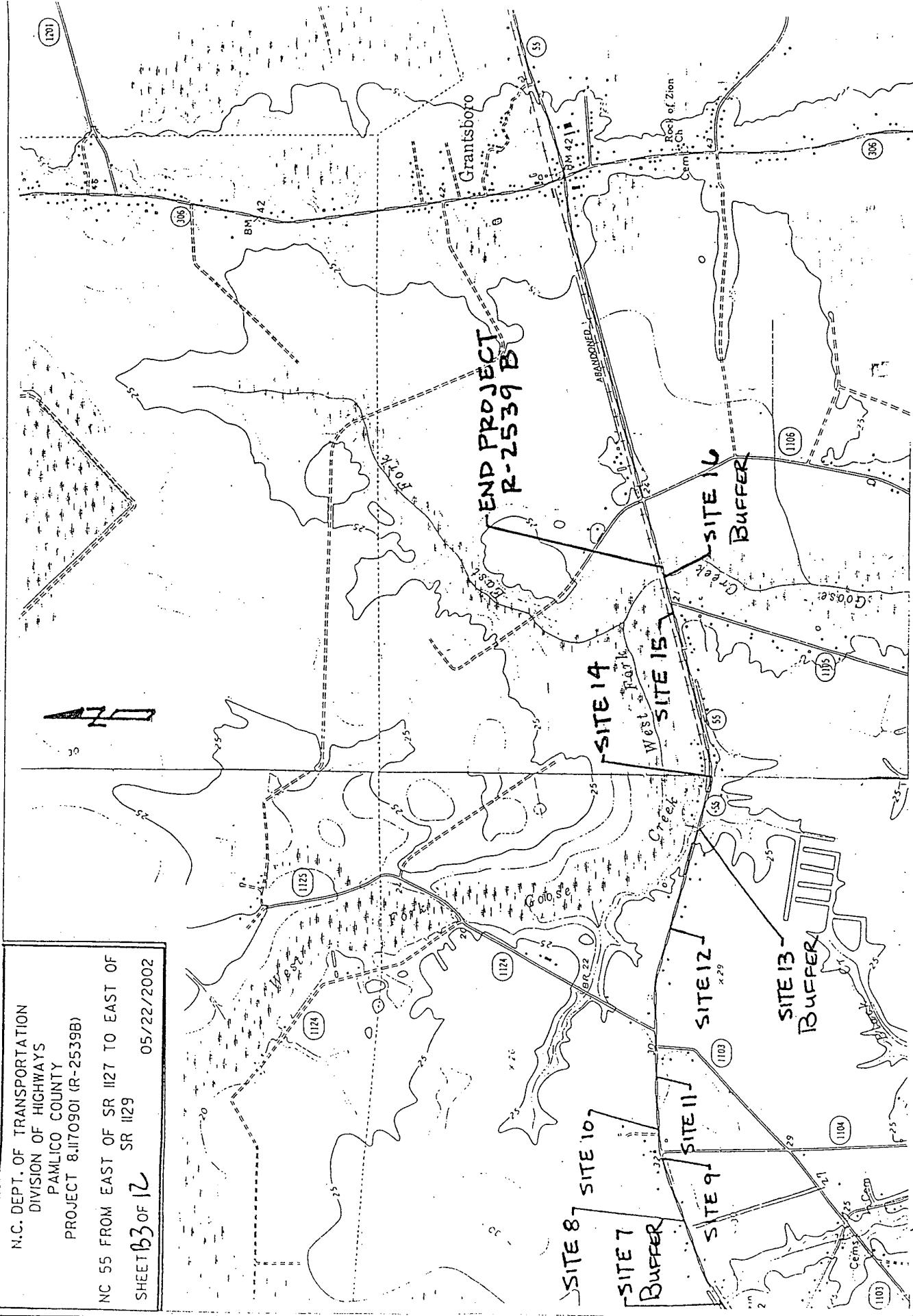
Draft Rev



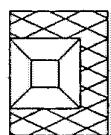
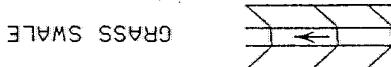
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMLICO COUNTY
PROJECT 8.II70901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST
SR 1129
05/22/2005
SHEET 82 OF 12



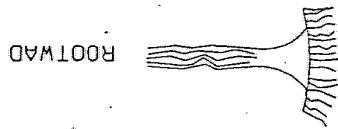
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 8.II7090I (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF
SR 1129
SHEET B3 OF 12
05/22/2002



TO EAST OF SR 1129
NC 55 FROM EAST OF SR 1127
PROJECT: 81170901 (R-2339B)
PALMICO COUNTY
DIVISION OF HIGHWAYS
N.C. DEPT. OF TRANSPORTATION



ADJACENT PROPERTY OWNER
OR PARCEL NUMBER
IF AVAILABLE

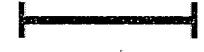


DRAINAGE INLET

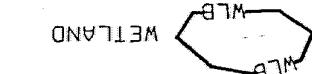


MITIGABLE IMPACTS ZONE 2
MITIGABLE IMPACTS ZONE 1
BZ — RIPARIAN BUFFER ZONE 1
BZ1 — RIPARIAN BUFFER ZONE 1
BZ2 — RIPARIAN BUFFER ZONE 2
WE — EDGE OF WATER
TB — TOP OF BANK
ADJACENT PROPERTY OWNER
OR PARCEL NUMBER
IF AVAILABLE

— BZ — RIPARIAN BUFFER ZONE 2
— BZ1 — RIPARIAN BUFFER ZONE 1
— BZ2 — RIPARIAN BUFFER ZONE 1
— WE — EDGE OF WATER
— TB — TOP OF BANK
— ADJACENT PROPERTY OWNER
— OR PARCEL NUMBER
— IF AVAILABLE



WL8 — WETLAND BOUNDARY
PROPOSED BRIDGE
PROPOSED BOX CULVERT



WL8 — WETLAND BOUNDARY

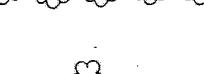
— WL8 — WETLAND BOUNDARY
— PROPOSED BRIDGE
— PROPOSED BOX CULVERT



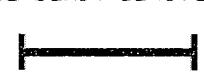
— PROPOSED IMPACTS ZONE 1
— PROPOSED IMPACTS ZONE 2



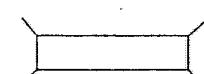
— MITIGABLE IMPACTS ZONE 1
— MITIGABLE IMPACTS ZONE 2



— SINGLE TREE



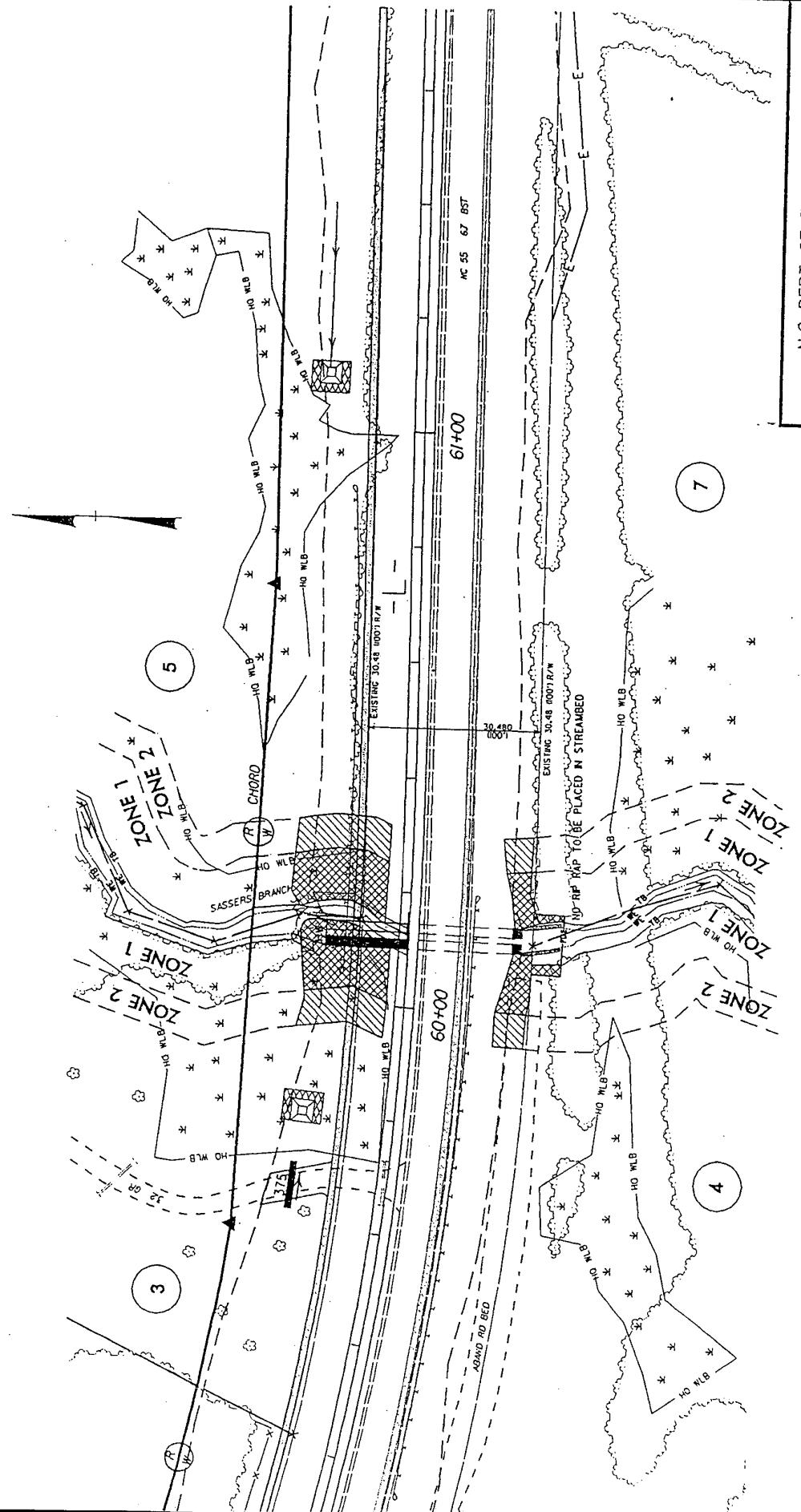
— ALLOWABLE IMPACTS ZONE 1



— ALLOWABLE IMPACTS ZONE 2

LEGEND

SITE 2 -L= STA. 59+70 TO 61+00 LT



N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 8.II70901 (R-2539B)

NC 55 FROM EAST OF SR II27 TO EAST OF
SR II29

Sheet 85 of 12
06/24/2003

IMPACT ZONE 1
IMPACT ZONE 2

06/24/2003

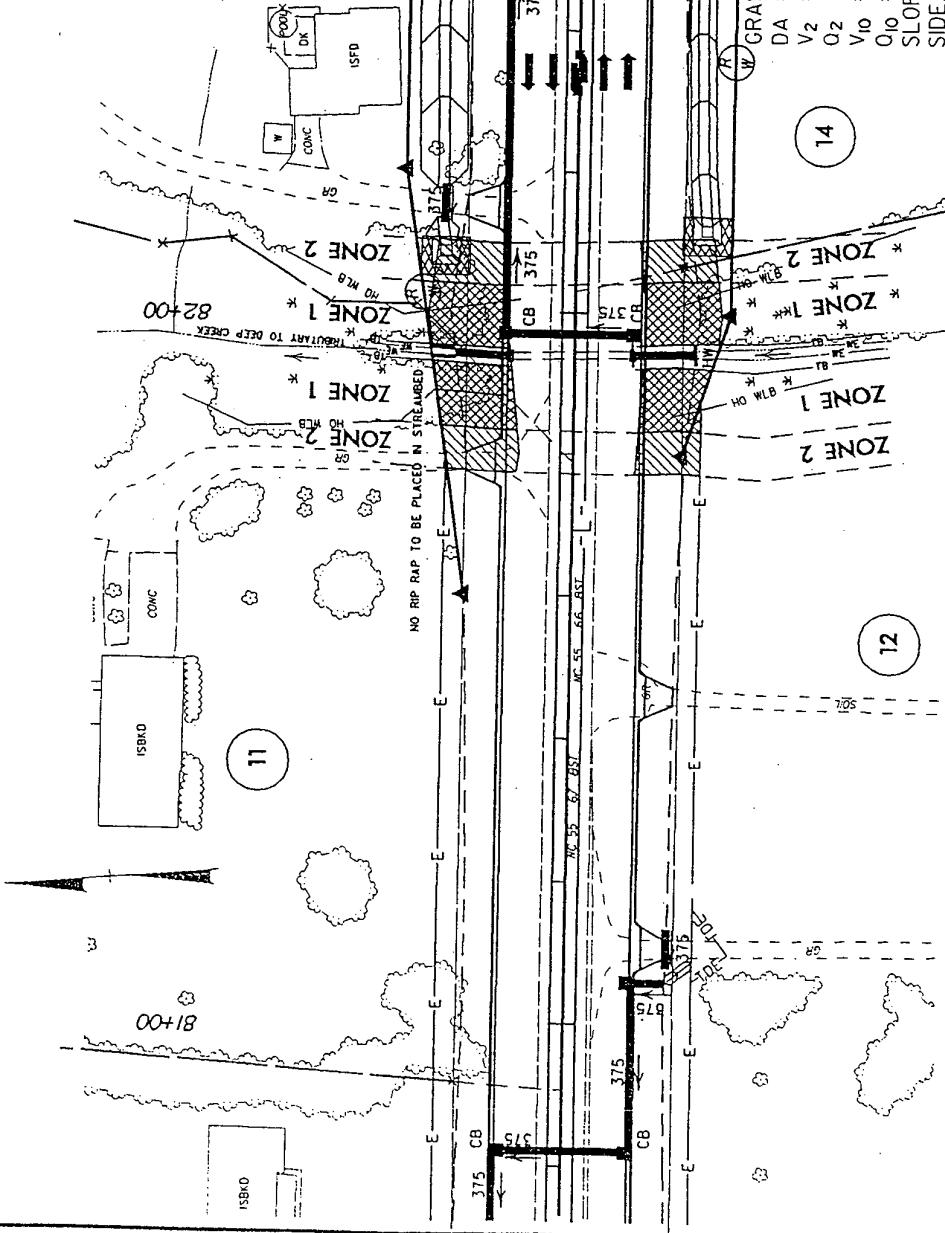
Scale: 1:1000
N

SITE 5 -L= STA. 81 + 85 TO 82 + 00 RT & LT

GRASS SWALE
DA = 3.05 AC
V₂ = 1.7 fps
Q₂ = 8.8 cfs
V_{IO} = 2.1 fps

Q_{IO} = 19.5 cfs
SLOPE = 0.3% TO 0.46%
SIDE SLOPE = 3:1
BASE WIDTH = 5'
LENGTH = 459'

(13)



GRASS SWALE
DA = 0.45 AC
V₂ = 1.2 fps
Q₂ = 0.5 cfs
V_{IO} = 1.3 fps
Q_{IO} = 0.8 cfs
SLOPE = 0.46% TO 2.5%
SIDE SLOPE = 3:1
BASE WIDTH = 5'
LENGTH = 682'

(14)

(12)

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMLICO COUNTY
PROJECT 8.II7090I (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST O
SR 1129

06/24/2003

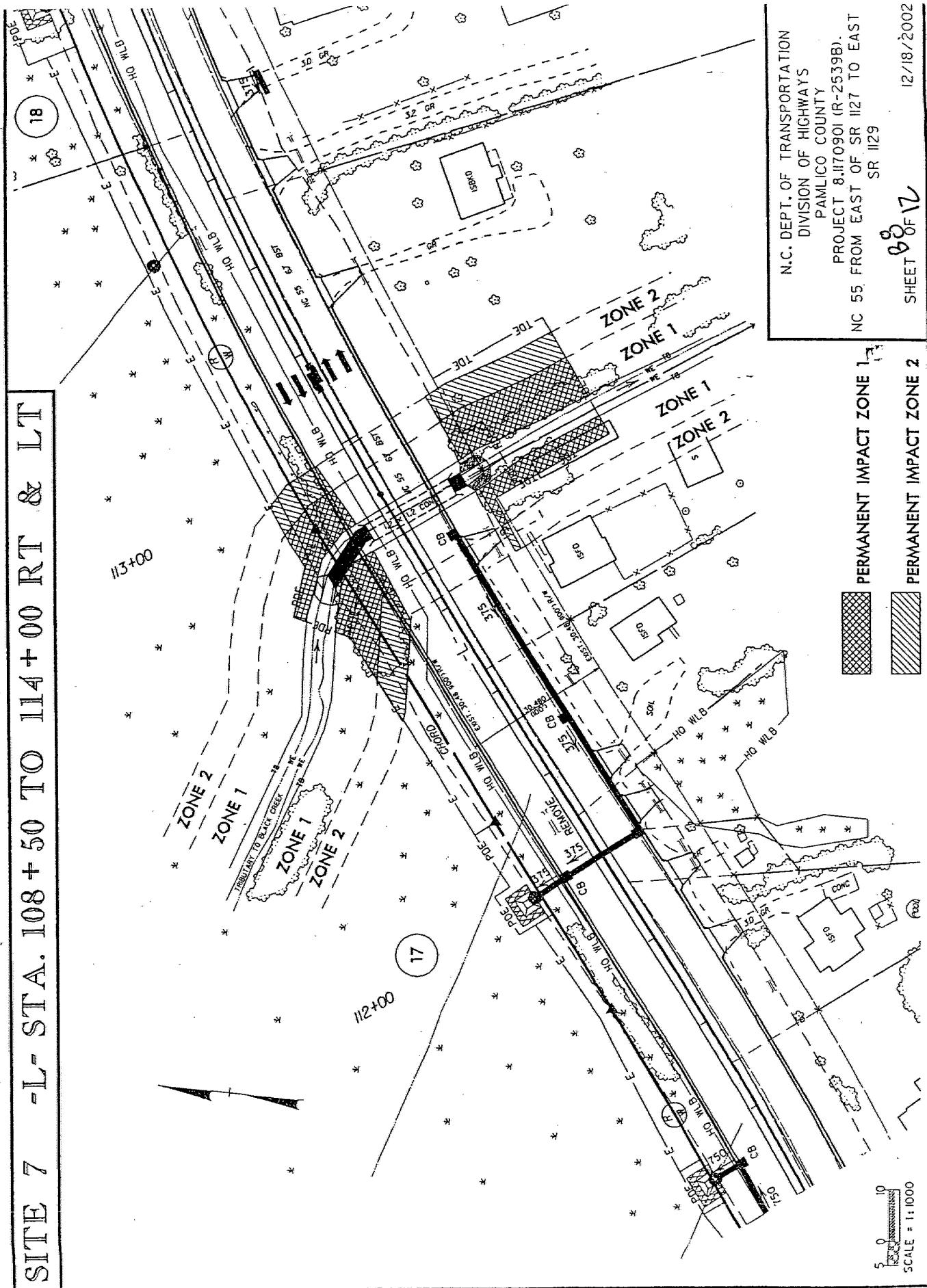
PERMANENT IMPACT ZONE 1
PERMANENT IMPACT ZONE 2

SCALE = 1:1000

06/24/2003

SHEET 67 OF 12

SITE 7 - STA. 108+50 TO 114+00 RT & LT



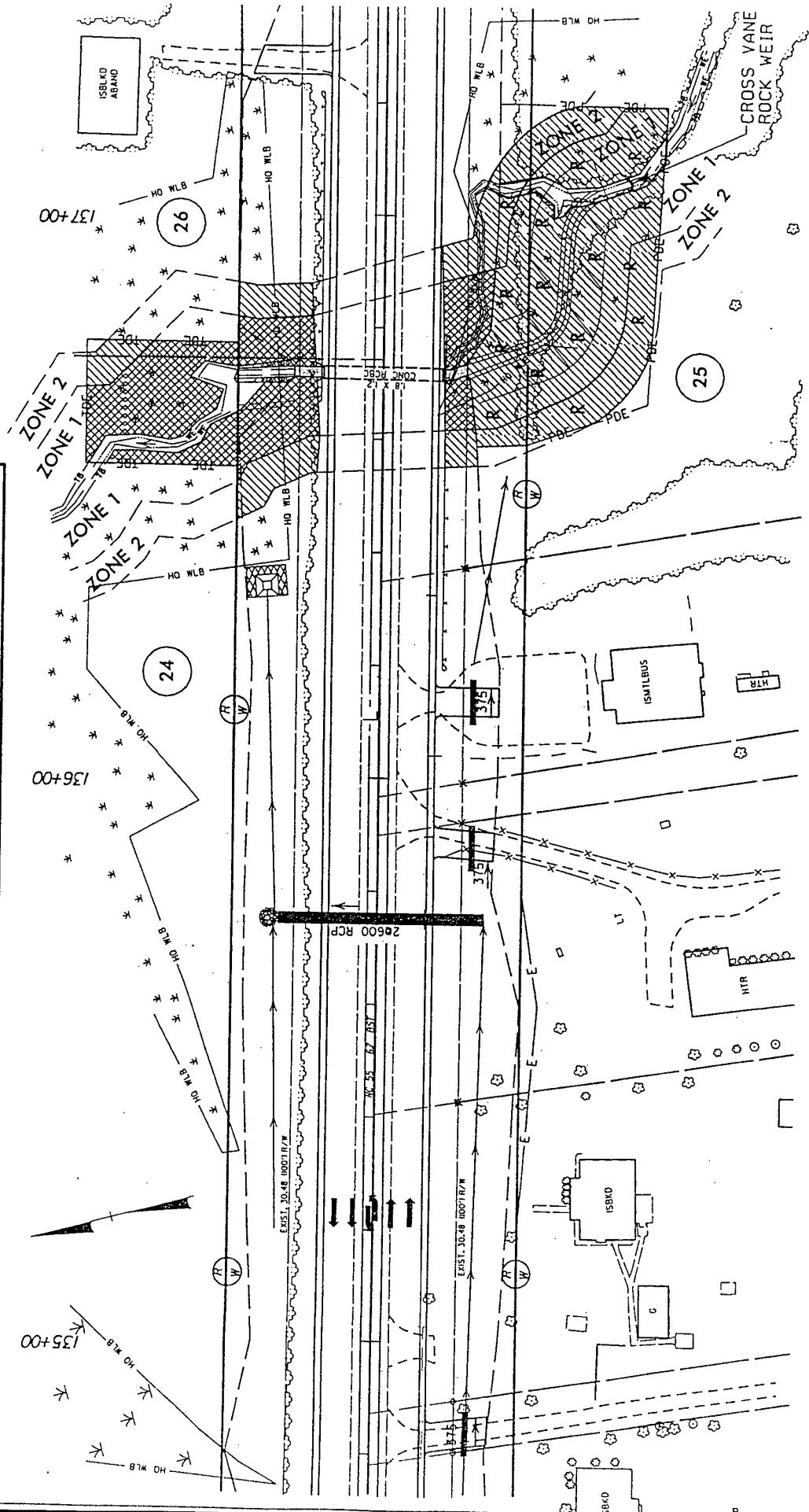
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 8.II7090 (R-2539B)
NC 55, FROM EAST OF SR II27 TO EAST
SR II29

12/18/2002
SHEET 8 OF 12

PERMANENT IMPACT ZONE 1
PERMANENT IMPACT ZONE 2

SCALE = 1:1000

SITE 13 STA. 134+75 TO 137+30 RT & LT



N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 8.II7090I (R-2539B)
NC 55 FROM EAST OF SR II27 TO EAST OF
SR II29

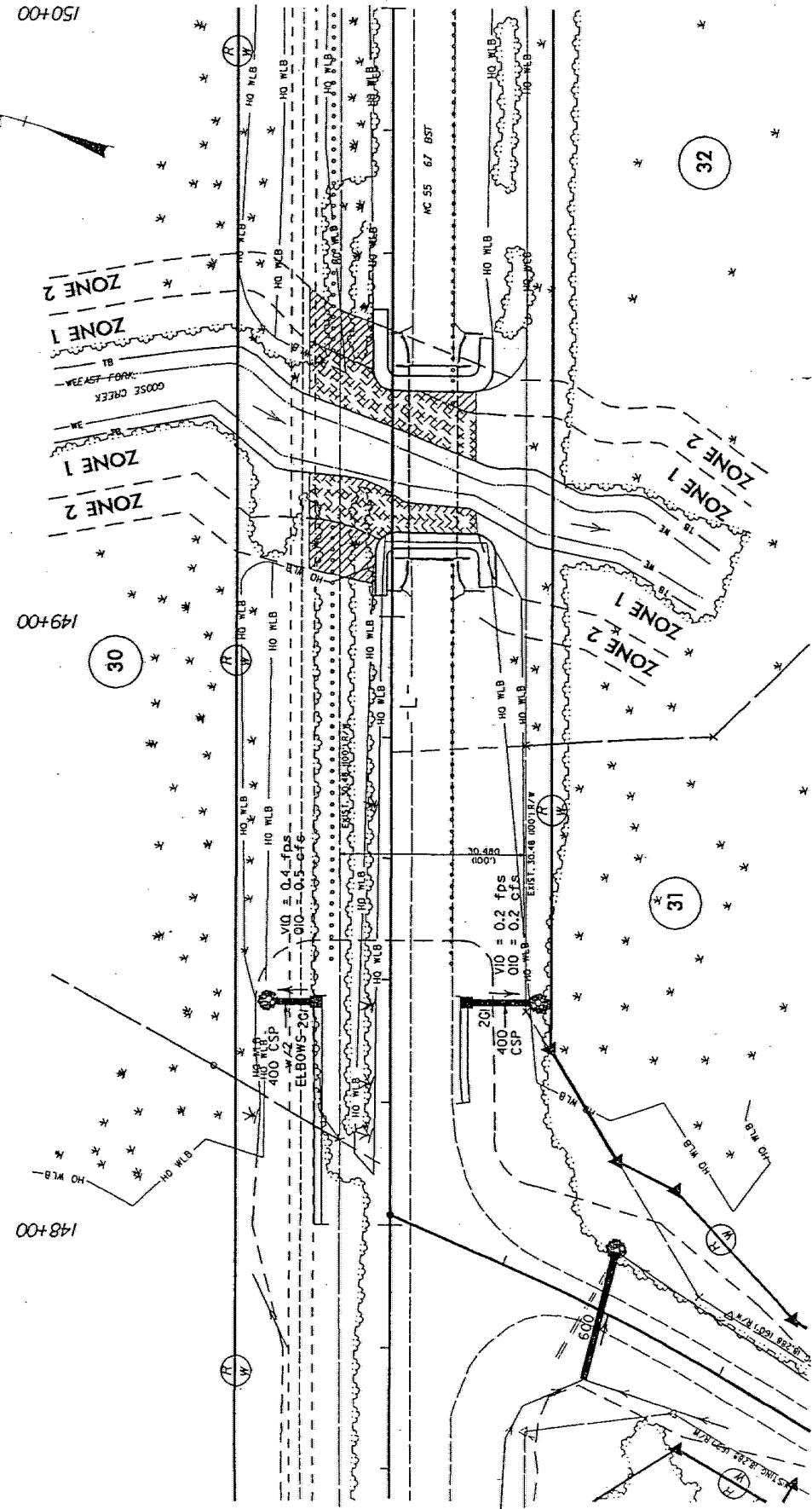
89
SHEET OF 12

R R BUFFER REPLACEMENT

SCALE = 1:1000

4/7/2003

SITE 16 - STA. 148+10 TO 151+40 RT & LT



N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT 8.II70901 (R-2539B)
NC 55 FROM EAST OF SR II27 TO EAST
SR II29
SHEET 6 OF 12
12-48-2002

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

SCALE = 1:1000

7-9-03

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	TYPE	IMPACT				BUFFER REPLACEMENT		
				ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ac)	ALLOWABLE	ZONE 1 (ac)	ZONE 2 (ac)	TOTAL (ac)
2	EXTENSION OF 2@ 1650 RCP	-L- Sta 59+70 TO 61+00	X		0.11	0.06	0.17			
4	BRIDGE, 5 SPAN (5@ 20m) = 100m 1143mm PRESTRESSED CONCRETE GIRDERS	-L- Sta 74+85 TO 77+40	X		0.13	0.18	0.31			
5	EXTENSION OF 1050 RCP W/COLLAR	-L- Sta 81+85 TO 82+00	X		0.09	0.06	0.15			
7	EXTENSION OF 1.8 x 1.2 & 1.2 x 1.2 RCBC (TWO CELLS)	-L- Sta 108+50 TO 114+00	X		0.18	0.10	0.27			
13	EXTENSION OF 1.8 x 1.2 RCBC	-L- Sta 134+75 TO 137+30	X		0.21	0.09	0.31			
16	BRIDGE, 17 SPAN (6@13m, 1@15m, 10@13m) 533mm CORED SLAB	-L- Sta 148+10 TO 151+40	X		0.09	0.05	0.14			
TOTAL:					0.81	0.54	1.35			
								0.00	0.33	0.33
										0.07

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PAMlico COUNTY

PROJECT: 8-1170901 (R-2239B)

NC 55 FROM EAST OF SR 1127 TO EAST OF SR 1129

12/18/2002, rev. 7-19-03

SHEET 12 OF 12

B11

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	TYPE	IMPACT				TOTAL (m³)	MITIGABLE (m³)	ZONE 1 (m³)	ZONE 2 (m³)	BUFFER REPLACEMENT (m³)
				ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (m³)	ZONE 2 (m³)					
2	EXTENSION OF 2@ 1650 RCP	-L- Sta 59+70 TO 61+00	X			434.9	255.7	690.6				
4	BRIDGE, 5 SPAN (5@ 20m) = 100m 1143mm PRESTRESSED CONCRETE GIRDERS	-L- Sta 74+85 TO 77+40	X			508.4	748.4	1256.8				
5	EXTENSION OF 1050 RCP w/ COLLAR	-L- Sta 81+85 TO 82+00	X			372.0	241.0	613.0				
7	EXTENSION OF 1.8 x 1.2 & 1.2 x 1.2 RCBC (TWO CELLS)	-L- Sta 108+50 TO 114+00	X			712.0	388.0	1100.0				
13	EXTENSION OF 1.8 x 1.2 RCBC	-L- Sta 134+75 TO 137+30	X			867.0	374.0	1241.0				
16	BRIDGE, 17 SPAN (6@13m, 1@15m, 10@13m) 533mm CORED SLAB	-L- Sta 148+10 TO 151+40	X			384.4	192.2	576.6				
TOTAL:												
						3278.7	2199.3	5478.0	0.0	1353.0	270.0	

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
PAMlico COUNTY
PROJECT: 8.1170901 (R-2539B)
NC 55 FROM EAST OF SR 1127 TO EAST OF SR 1129
12/18/2002, rev. 7-9-03
SHEET OF **12** **B12**